DAVID A. HOWES
Geospatial Information Scientist
Compliance Services International

SUMMARY OF EXPERIENCE

PROFESSIONAL EXPERIENCE

Over 10 years of experience creating and using procedures for analyzing, collecting, modeling, and presenting spatial data for a diverse range of environmental and socio-economic applications. These include modeling runoff in desert environments, developing a water quality modeling and monitoring information system, developing a system for evaluating the effectiveness of crime prevention initiatives, and using satellite imagery to study urban growth patterns.

CREDENTIALS

Ph.D.	1999	State University of New York at Buffalo, Geography (Research focus: Fluvial Geomorphology, with Dr. Athol D. Abrahams), (Dissertation: Modeling Runoff in a Desert Shrubland Ecosystem, Jornada Basin, New Mexico)
M.Sc.	1991	University of Edinburgh, Scotland, Geographic Information Systems, (Thesis: Performance Characteristics of Triangulation Algorithms)
B.Sc. (Hons)	1990	University of Salford, England, Geography (Major concentration: Physical Geography), (Dissertation: A Critical Appraisal of the National Water Council System of River Grading)

PROFESSIONAL AFFILIATIONS/APPOINTMENTS

Regional Science Association International, British Section Committee Member and Newsletter Editor (1993 – 1994)

PROJECT EXPERIENCE

- GIS application development
  Constructed a decision support system for evaluating the effectiveness of crime prevention schemes in United Kingdom cities, as part of a major UK Home Office research project. This ArcInfo-based system allows a user to study spatial and temporal relationships between the extent and duration of crime prevention schemes and the extent and duration of society's perceptions of the effectiveness of these schemes (as represented by survey data) and to generate statistics to describe these relationships.

- Decision support system development
  Managed and contributed significantly to the development of the Huangpu River Basin Environmental Monitoring Information System (HRBEMIS) for the Shanghai Environmental Monitoring Centre (SEMC), PRC China. HRBEMIS is a water resources decision support system consisting of three main components:

1. Water quality monitoring information system – a set of new water quality, point source, and precipitation monitoring databases and associated data screening, analysis, and presentation systems.
2. Hydraulic and water quality modeling system – a multi-user system that allows SEMC to evaluate the effects of a wide range of different uses of the Huangpu River Basin on water quality within the main river and in a number of major tributaries. At the core of the system is a purpose-built semi-analytical 2D hydraulic and water quality model of the Huangpu River system.
3. Emergency response module – an extension of the water quality modeling system that allows a user to quickly assess the extent to which an incident, such as the spillage of a pollutant into the Huangpu River, presents a threat to water quality in the river basin.

- Hydrological modeling
  Developed one-dimensional (1D) and two-dimensional (2D) models to simulate surface runoff from two small semiarid shrubland watersheds in southern New Mexico as part of the National Science Foundation Jornada Basin Long Term Ecological Research Project. The two models, which operate at the scale of an individual shrub, were parameterized by means of field surveys and rainfall simulation experiments. The ability of the two models to simulate the temporal and spatial characteristics of runoff from the watersheds was demonstrated and compared. In addition, the 2D model was used to examine the relative importance of runon infiltration in supplying water to shrubs.

PROFESSIONAL EMPLOYMENT

Project Analyst (2001 – Present)
Compliance Services International
Tacoma, Washington
Responsible for applying Geographic Information Systems (GIS), interface development, and database technology to create stand-alone and/or web-based systems for analyzing, handling, and presenting ecological and environmental data. Examples of these systems include knowledge based systems, decision support systems, modeling systems, data viewing and reporting systems, and hybrid systems that combine some or all of these types of systems.

Geographic Information Systems Analyst/Project Manager (1999-2001)
Ecology & Environment, Inc.
Buffalo, New York
Project Manager/programmer responsible for the development of the Huangpu River Basin Environmental Monitoring Information System (HRBEMIS) (Shanghai Environmental Project TA-7/TA-8). HRBEMIS is a water resources decision support system consisting of (1) water quality monitoring databases and associated data screening, analysis, and presentation tools, (2) a hydraulic and water quality modeling system, and (3) a module for developing and testing emergency response scenarios. Software used in HRBEMIS includes Microsoft Visual Basic, Access, and SQL Server, ESRI MapObjects and ArcView.

Research Assistant (1998-1999)
Department of Geography, State University of New York at Buffalo
Buffalo, New York
Project work: Modeling runoff in a desert shrubland ecosystem, Jornada Basin, New Mexico (Ph.D. dissertation)

Teaching Assistant (1997-1998)
Department of Geography, State University of New York at Buffalo
Buffalo, New York
Course taught: Introduction to Physical Environmental Geography (Geography 101)

Research Assistant (1994-1997)
National Center for Geographic Information and Analysis (NCGIA), State University of New York at Buffalo
Buffalo, New York
Project work: Visualizing urban development using parcel-level property data
Predicting temporal pattern in urban development from Landsat Multispectral Scanner (MSS) imagery
Modeling spatial variability in infiltration using a one-dimensional runoff model developed to simulate overland flow on semiarid hillslopes
Course taught: Introduction to Geographic Information Systems (Geography 481)

Research Associate (1992-1994)
North West Regional Research Laboratory
Lancaster University, England
Project work: Development of a GIS-based crime prevention scheme evaluation system for the UK Home Office
Development of GIS- and census-based variables for use in the prediction of values missing from a national survey of village services, for the UK Rural Development Commission
Visibility analysis for a proposed windfarm at Caton Moor near Lancaster, England
Development of geodemographic classification routines and their implementation within a GIS framework
Development of digital terrain models for Novaya Zemlya, Northern Siberia as part of a study into Arctic geomorphology
Health center location-allocation studies for South East Thames Regional Health Authority and Gateshead National Health Service Trust, England
Other duties: Establishment and maintenance of computing facilities for GIS research and teaching
Courses taught: Introduction to GIS (using IDRISI) (graduate and undergraduate final year courses)

PUBLICATIONS

Howes, D.A. and Abrahams, A.D. 2001. Modeling Runoff and Runon in a Desert Shrubland Ecosystem, Jornada Basin, New Mexico, submitted to *Geomorphology*.
Batty, J.M., and **Howes, D.A.** 1996. Exploring Urban Development Dynamics Through Visualisation, in Parker, D., editor, *Innovations in GIS: Selected Papers from the Third National Conference on GIS Research UK (GISRUK)*, Taylor and Francis, Bristol, Pennsylvania, pp. 149-161.
Batty, J.M., and **Howes, D.A.** 1996. Visualizing Urban Development, *Geo Info Systems*, Eugene, Oregon, September issue, pp. 28-32.
Howes, D.A., and Gatrell, A.C. 1993, Coming Soon to Your Backyard, *Geographical*, Royal Geographical Society, London, September issue, pp. 30-33.
Howes, D. A., and Gatrell, A. C. 1993. Visibility Analysis in GIS: Issues in the Environmental Impact Assessment of Windfarm Developments, in *Proceedings of EGIS '93, Fourth European Conference and Exhibition on Geographical Information Systems, Genoa, Italy*, pp. 861-870.

PRESENTATIONS

Howes, D.A., Blair, S., and Pasch, J. 2000. GIS Enhanced Decision Support Systems for Watershed Management. Presented at SETAC 21st Annual Meeting in North America, Nashville, TN.
Howes, D.A. and Abrahams, A.D. 2000. One- and Two-Dimensional Modeling of Surface Runoff in a Desert Shrubland Ecosystem. Presented at 2000 International Binghamton Geomorphology Symposium, Binghamton, NY.
Howes, D.A. and Abrahams, A.D. 1999, One- and Two-Dimensional Modeling of Surface Runoff in a Desert Shrubland Ecosystem. Presented at Association of American Geographers 95th Annual Meeting, Honolulu, HI.
Howes, D.A. and Abrahams, A.D. 1998. Modeling Runoff in a Desert Shrubland Ecosystem. Presented at Association of American Geographers 94th Annual Meeting, Boston, MA.
Howes, D.A. and Abrahams, A.D. 1997. Modeling Runoff in a Desert Shrubland Ecosystem. Presented at Seventh Annual Friends of the Jornada Symposium, Las Cruces, NM.
Howes, D.A. and Abrahams, A.D. 1997. Modeling Overland Flow on Bajada Surfaces in the Jornada Basin, New Mexico. Invited presentation to United States Department of Agriculture - Agricultural Research Service, National Soil Erosion Research Laboratory, West Lafayette, IN.
Howes, D.A. and Abrahams, A.D. 1997. Modeling Water, Sediment, and Nutrient Fluxes in a Desert Shrubland Ecosystem. Presented at Association of American Geographers 93rd Annual Meeting, Fort Worth, TX.
Howes, D.A. and Batty, J.M. 1996. Visualizing and Predicting Urban Development Using Property Data and Satellite Imagery. Presented at Association of American Geographers 92nd Annual Meeting, Charlotte, NC.
Howes, D.A. and Abrahams, A.D. 1996. Modeling Spatial Variability in Infiltration. Invited presentation to Department of Geography, University of Dundee, Scotland.
Howes, D.A., Green, M., and Kurtz, T. 1993. Spatial Statistical Modeling in a GIS Framework: Predicting Levels of Rural Deprivation in Britain. Presented at Regional Science Association International, British Section, 24th Annual Conference, University of Nottingham, England.
Howes, D.A. and Gatrell, A.C. 1993. Visibility Analysis in GIS: Issues in the Environmental Impact Assessment of Windfarm Developments. Presented at GIS '93, Birmingham, England.
Howes, D.A., Green, M., and Kurtz, T. 1993. Spatial Statistical Modeling in a GIS Framework: Predicting Levels of Rural Deprivation in Britain. Presented at EGIS '93, Genoa, Italy.
Howes, D.A., Green, M., and Kurtz, T. 1993. Where to Get a Drink Using GIS. Presented at GIS Research UK, University of Keele, England.
Howes, D.A. and Flowerdew, R. 1992. Geodemographic Clustering for the 1990s. Presented at Regional Science Association International, British Section, 23rd Annual Conference, University of Dundee, Scotland.