

# Open Source/Non-Commercial GIS Products

Product	Supplier
<b>ade4</b>	<b>R Project - Spatial section. See also <a href="http://cran.r-project.org/web/views/Spatial.html">http://cran.r-project.org/web/views/Spatial.html</a></b>
Type: Mathematical/Statistical librar	<a href="http://cran.r-project.org/web/packages/ade4/index.html">http://cran.r-project.org/web/packages/ade4/index.html</a>
Exploratory and Euclidean methods in the environmental sciences - very large number of features and functions supported	
<b>Agent Analyst</b>	<b>ESRI Inc, Redlands, CA, USA</b>
Type: Geosimulation	<a href="http://www.institute.redlands.edu/agentanalyst">http://www.institute.redlands.edu/agentanalyst</a>
Agent Analyst allows users to create, edit, and run Repast models from within the ArcGIS 9 geoprocessing framework. Requires Java. 47Mb download	
<b>ANN</b>	<b>University of Maryland, USA, Dept of Computer Science</b>
Type: Mathematical/Statistical librar	<a href="http://www.cs.umd.edu/~mount/ANN/">http://www.cs.umd.edu/~mount/ANN/</a>
Approximate NN library. ANN is a library written in C++, which supports data structures and algorithms for both exact and approximate nearest neighbor searching in arbitrarily high dimensions	
<b>ArcExplorer</b>	<b>ESRI Inc, Redlands, CA, USA</b>
Type: Viewer	<a href="http://www.esri.com/software/arcexplorer">http://www.esri.com/software/arcexplorer</a>
ArcExplorer--GIS Data Viewer - a lightweight GIS data viewer written in Java that is used to perform basic GIS functions (e.g., view, navigate, and query). It is a downloadable application that operates in a stand-alone environment	
<b>Cartomap</b>	
Type: Viewer	<a href="http://www.cartoworld.com/CartoMAP.html">http://www.cartoworld.com/CartoMAP.html</a>
Free map viewer for SHP and MIF files	
<b>CommonGIS</b>	<b>Fraunhofer Institute, Germany</b>
Type: GIS	<a href="http://www.commongis.com">http://www.commongis.com</a>
Java based GIS package with strong thematic mapping and exploratory data analysis facilities (this is the successor to the Descartes software). New facilities include movement analysis, a range of ESDA and decision support facilities and L.O.G.I.S - a "Library of Optimization Algorithms for Geographical Information Systems" used in the new Districting add-on	
<b>Concorde</b>	<b>Georgia Tech, USA</b>
Type: Optimisation	<a href="http://www.tsp.gatech.edu/concorde/index.html">http://www.tsp.gatech.edu/concorde/index.html</a>
High performance solver for symmetric TSP network problems	
<b>Coordinate Calculator</b>	<b>TatukGIS, Gdynia, Poland</b>
Type: Specialised mapping	<a href="http://www.tatukgis.com/Products/calculator/calculator.aspx">http://www.tatukgis.com/Products/calculator/calculator.aspx</a>
Datum/projection converter and viewer	
<b>Crimestat III</b>	<b>National Institute of Justice, USA</b>
Type: Crime analysis	<a href="http://www.icpsr.umich.edu/CRIMESTAT/">http://www.icpsr.umich.edu/CRIMESTAT/</a>
CrimeStat is a spatial statistics program for the analysis of crime incident locations. Crime event analysis, vector (N Levine). Tools include spatial distribution analysis (basic statistical measures and many distance statistics (e.g. nearest neighbour tools, Ripley K etc); kernel density analysis; hot spot analysis; plus a range of new modelling tools (trip distribution based)	
See also crime analysis toolsets listed at <a href="http://www.iaca.net/Software.asp">http://www.iaca.net/Software.asp</a> and <a href="http://www.ojp.usdoj.gov/nij/maps/software.html">http://www.ojp.usdoj.gov/nij/maps/software.html</a> (including CASE and DRAGNET)	

## Product

## Supplier

### DEPTHMAP

Space Syntax Laboratory, Bartlett School of Architecture, UCL, London, UK

Type: Telecommunications/visibility <http://www.spacesyntax.org/software/depthmap.asp>

Visibility analysis of architectural and urban systems. In addition, the most recent version of Depthmap includes the original visibility analysis, generation and analysis of axial maps as well as segment analysis, and finally agent-based analysis. A related product, CONFEEGO, is also available and runs within the MAPINFO GIS

### ESTAT

Penn State

Type: Exploratory data analysis (EDA/ <http://gis.cancer.gov/nci/spatial.html>)

Exploratory Spatio-Temporal Analysis Toolkit, a Java-based implementation of several of the ESDA tools provided within GeoVista augmented by linked time-series plots

### Farsite

US Fire Service

Type: Emergency and Hazard Assessm <http://www.firemodels.org/index.php/national-systems/farsite>

FARSITE is a fire growth simulation model. It uses spatial information on topography and fuels along with weather and wind files. It incorporates the existing models for surface fire, crown fire, spotting, post-frontal combustion, and fire acceleration into a 2-dimensional fire growth model.

### FDO

OpenSource team,/Autodesk

Type: GIS tools <http://fdo.osgeo.org/>

FDO (Feature, Data, Object) Data Access Technology is an API for manipulating, defining and analyzing geospatial information regardless of where it is stored. FDO uses a provider-based model for supporting a variety of geospatial data sources, where each provider typically supports a particular data format or data store

### Fragstats

University of Mass., USA

Type: Landscape analysis <http://www.umass.edu/landeco/research/fragstats/fragstats.html>

Analysis of ecological raster data. Spatial pattern analysis for categorical maps. V3 is a raster-only program, whereas V2 has support for ArcInfo vector files (coverages)

### GALib

MIT

Type: Genetic algorithms <http://lancet.mit.edu/ga/>

Genetic Algorithms - C++ library developed by Matthew Wall whilst at MIT

### GAM/K

University of Leeds, UK, Centre for Computational Geography

Type: Cluster analysis <http://www.ccg.leeds.ac.uk/software/gam/>

Geographic Analysis Machine / cluster hunting software

### GDAL

Type: GIS tools <http://www.gdal.org/>

Geospatial Data Abstraction Library (GDAL/OGR) is a cross platform C++ translator library for raster and vector geospatial data formats that is released under an X/MIT style Open Source license by the Open Source Geospatial Foundation. As a library, it presents a single abstract data model to the calling application for all supported formats. It also comes with a variety of useful commandline utilities for data translation and processing. GDAL supports over 50 raster formats, and OGR over 20 vector formats

### GeoDa

Spatial Analysis Laboratory, Univ of Conneticut, USA

Type: Exploratory data analysis (EDA/ <http://geodacenter.asu.edu/software>)

Exploratory spatial data analysis, vector (L Anselin). GeoDa is the latest incarnation of a collection of software tools designed to implement techniques for exploratory spatial data analysis (ESDA) on lattice data.1 It is intended to provide a user friendly and graphical interface to methods of descriptive spatial data analysis, such as global and local (LISA) autocorrelation statistics and indicators of spatial outliers, plus some more advanced regression analysis facilities.

### Geographic Explorer

Blue Marble

Type: Viewer <http://www.bluemarblegeo.com/appexpl.htm>

Geographic Explorer--GIS Data Format Translator/Viewer - Supports MIF, SHP, TAB, DWG, DXF, DGN, TIFF, BMP & JPG

## Product

## Supplier

### Geomatica Freeview

PCI Geomatics Group, Ontario, Canada

Type: Viewer

<http://www.pcigeomatics.com/freeware/freeware.html>

Free viewer from PCI for Geomatica 10

### Geotools

Collaborative effort

Type: GIS tools

<http://geotools.codehaus.org/>

Opensource GIS Java toolset providing implementations of many Open Geospatial Consortium (OGC) specifications as they are developed. GeoTools is also associated with the GeoAPI project that creates geospatial, Java interfaces

### GMT

School of Earth Science and technology, Univ of Hawai'i, Manoa

Type: GIS tools

<http://gmt.soest.hawaii.edu/>

GMT (Generic Mapping Tools) is an open source collection of around 60 tools for manipulating geographic and Cartesian data sets (including filtering, trend fitting, gridding, projecting, etc.) and producing Encapsulated PostScript File (EPS) illustrations ranging from simple x-y plots via contour maps to artificially illuminated surfaces and 3-D perspective views. It is designed as a command line driven suite of programs for Unix environments.

### GRASP

Landcare Research 1999-2004  
(A. Lehmann, J.R. Leathwick, J.McC. Overton)

Type: Specialised data analysis

<http://www.unine.ch/CSCF/grasp/>

Generalized Regression Analysis and Spatial Prediction. GRASP-R is a plugin for R and S-Plus statistical packages that offers an automated way of making spatial predictions from point surveys using Generalized Additive Models. The R version is now managed at: <http://sourceforge.net/projects/grasper/> - see also: Lehmann A., Overton J.McC. & Leathwick, J.R. GRASP: Generalized regression analysis and spatial predictions, Ecological Modelling, 157: 189-207

### GRASS

Open source

Type: GIS

<http://grass.itc.it/>

Geographic Resources Analysis Support System. Open source GIS with both raster and vector support. Geographic Resources Analysis Support System, commonly referred to as GRASS, is a Geographic Information System (GIS) used for geospatial data management and analysis, image processing, graphics/maps production, spatial modeling, and visualization. GRASS is currently used in academic and commercial settings around the world, as well as by many governmental agencies and environmental consulting companies.

### GVSIG

Generalitat Valenciana, Spain

Type: GIS

<http://www.gvsig.org>

gvSIG is a desktop tool designed to manage geographic information. It is characterized by a user-friendly interface that can easily access the most common raster and vector formats. In a single view, it includes local files as well as remote data through SDI standards, geographic databases, etc. Multiple language support - its interface is in Spanish, Valencian, English, Basque, Gallego, Czech, Chinese, French, German, Italian, Romanian, Polish and Portuguese

### Hawth's Tools

Hawthorne Beyer  
Spatial Information Systems Consultant  
[hawthorne@spatialecology.co](mailto:hawthorne@spatialecology.co)

Type: GIS tools

<http://www.spatialecology.com/>

ArcGIS extension for spatial analysis, especially ecological applications. Includes tools for animal movement studies and spatial sampling, amongst others. To be updated/replaced by the Spatial Modelling Environment

### ILOG CPLEX

ILOG, Gentilly, France

Type: Optimisation

<http://www.ilog.com/products/cplex/>

Linear Programming (LP)/Mixed Integer Programming (MIP) solver. Part of the ILOG Optimisation suite (see below). Free student edition

### ILWIS

ITC

Type: GIS

<http://www.itc.nl/ilwis>

The Integrated Land and Water Information System (ILWIS) is a PC-based GIS & Remote Sensing software, developed by ITC up to its last release (version 3.3) in 2005. ILWIS comprises a complete package of image processing, spatial analysis and digital mapping. It is easy to learn and use; it has full on-line help, extensive tutorials for direct use in courses and 25 case studies of various disciplines

## Product

## Supplier

### InterPose

Type: GIS tools [http://www.dottedeyes.com/spatial\\_data\\_loading/interpose/digimap.php](http://www.dottedeyes.com/spatial_data_loading/interpose/digimap.php)

Conversion software for MasterMap to ArcGIS format db

### Isovist Analyst

S Rana, University College, London

Type: Telecommunications/visibility <http://www.ucl.ac.uk/~ucessan/software/isovist-analyst.htm>

An ArcView extension for vector visibility analysis in 2D

### Java Topology Suite

Vivid Solutions Inc, Victoria, BC, Canada

Type: GIS tools <http://www.vividsolutions.com/jts/jtshome.htm>

An API of 2D spatial predicates and functions conforming to the Simple Features Specification for SQL published by the Open GIS Consortium

### Landfrag

Univ of Conneticut

Type: Landscape analysis <http://placeways.com/products/landfragtool.php>

The Landscape Fragmentation tool is designed to be used in ESRI's ArcGIS 9.2 geographic information system (GIS) software and allows users to analyze fragmentation using their own raster land cover information. The forest fragmentation model uses the land cover data from Connecticut's Changing Landscape to characterize the degree to which our forests have become carved up by developed landscapes, especially roads.

### Landserf

Jo Wood, Department of Information Science, City University, London UK

Type: Terrain analysis <http://www.landserf.org>

Surface analysis package, Java based, cross-platform with excellent analysis and visualisation facilities

### LOLA

University of Kaiserslauten, Germany

Type: Locational analysis <http://www.mathematik.uni-kl.de/~lola>

Locational analysis. A program for free-space and network-based optimum location modelling with many variants of metrics, plus a programming interface to facilitate the solution of specific problems

### LP-Solve

Open source, developed by Michel Berkelaar at Eindhoven University

Type: Optimisation <http://lpsolve.sourceforge.net/5.5/>

Mixed integer linear programming solver

### Map Comparison Kit

Research Institute for Knowledge Systems, Maastricht, Netherlands

Type: Spatio-temporal analysis [http://www.riks.nl/products/Map\\_Comparison\\_Kit](http://www.riks.nl/products/Map_Comparison_Kit)

Space-time map analysis

### MapGuide

Type: GIS <http://mapguide.osgeo.org/>

MapGuide Open Source is a web-based platform that enables users to quickly develop and deploy web mapping applications and geospatial web services. MapGuide features an interactive viewer that includes support for feature selection, property inspection, map tips, and operations such as buffer, select within, and measure. MapGuide includes an XML database for managing content, and supports most popular geospatial file formats, databases, and standards

### MAPresso

Type: Specialised mapping <http://www.mapresso.com/>

MAPresso is a free Java applet for unclassed choropleth maps and cartograms.

## Product

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### Mapserver

Univ of Minesotta, USA

Type: Specialised mapping <http://mapserver.org/>

MapServer is an Open Source development environment for building spatially-enabled internet applications. MapServer is not a full-featured GIS system, nor does it aspire to be. Instead, MapServer excels at rendering spatial data (maps, images, and vector data) for the web. A substantial 'gallery' of applications and sites using Mapserver is accessible via: <http://mapserver.gis.umn.edu/gallery>

### MAPublisher

Avenza Systems Inc, Toronto, Canada

Type: Specialised mapping <http://www.avenza.com/mapublisher>

MAPublisher Software for "final copy" (lite version for free).MAPublisher 7.5 combines the best features of GIS with the powerful design environments of Adobe Illustrator CS2 and CS3 to enable native GIS data files to be used as a base for cartographic production. Designed for use with Adobe Illustrator and some other professional graphics packages

### MASON

Evolutionary Computing Lab, George Mason Univesity, Fairfax, VA, USA

Type: Geosimulation <http://cs.gmu.edu/~eclab/projects/mason/>

Multi Agent Simulation Of Neighbourhood. Open source agent-based simulation package, cross-platform

### MATSim

Institute for Transport Planning and Systems (IVT), Swiss Federal Institute of Technology Zurich and Institute for Land and Sea Transport Systems, Technische Universität Berlin

Type: Geosimulation <http://matsim.org/>

MATSim is an opensource (Java) toolkit for building multi-agent transport simulations. Code now managed on Sourceforge, see: <http://sourceforge.net/projects/matsim>

### Mondrian

Martin Theus - see website for details and book

Type: Visualisation (2D and 3D) <http://www.theusrus.de/Mondrian/>

A general purpose statistical data-visualization system written in Java. It features outstanding visualization techniques for data of almost any kind, and has its particular strength compared to other tools when working with Categorical Data, Geographical Data and LARGE Data

### NetLab

Neural Computing Research Group, Aston University  
Birmingham, UK

Type: Neural networks <http://www1.aston.ac.uk/eas/research/groups/ncrg/resources/>

Neural network software library for MATLAB (Nabney). Requires MATLAB

### NetLogo

Northwestern University, USA

Type: Geosimulation <http://ccl.northwestern.edu/netlogo/>

Open source multi-agent simulation package, cross-platform (Wilensky). Requires Java 1.4.1 or later

### NuMAP

Image Processing and Neural Networks Lab, Univesity of Texas, Arlington, TX, USA

Type: Neural networks <http://www-ee.uta.edu/EEweb/IP/Software/Software.htm>

Neural network software for MLP, SOM and various other models. Comparison with MATLAB and SNSS suggest NuMap is faster/better

### Open Layers

Type: Specialised mapping <http://openlayers.org/>

OpenLayers is a pure JavaScript library for displaying map data in most modern web browsers, with no server-side dependencies

### OpenMap

BBN Technologies, Cambridge, MA, USA

Type: GIS tools <http://openmap.bbn.com/>

Open source, Java Beans based geospatial mapping toolset

Product	Supplier
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<b>OpenSourceGIS</b>	<b>OpenSourceGIS</b>
Type: GIS tools	<a href="http://opensourcegis.org/">http://opensourcegis.org/</a>
Assorted open source GIS software list, including almost 250 sites and software utilities for spatial data processing	

<b>OSSIM</b>	<b>Open Source</b>
Type: Image handling	<a href="http://www.ossim.org/">http://www.ossim.org/</a>
Open Source Software Image Map (OSSIM) is a high performance engine for remote sensing, image processing, geographical information systems and photogrammetry	

<b>PASSaGE</b>	<b>M Rosenberg, Arizona State University</b>
Type: Specialised data analysis	<a href="http://www.passagesoftware.net/">http://www.passagesoftware.net/</a>
PASSaGE: Pattern Analysis, Spatial Statistics, and Geographic Exegesis, a free, easy-to-use program for general spatial analysis - includes a wide range of analysis functions and supports multiple OS (Win, Mac, Unix)	

<b>PCRaster</b>	<b>Faculty of Geosciences, Utrecht University, Netherlands</b>
Type: GIS	<a href="http://pcraster.geo.uu.nl/">http://pcraster.geo.uu.nl/</a>
Raster-based analysis with strong hydrological modelling, many aspects of which are also derived from Tomlin's map algebra. Hydrology/Soil science. The PCRaster Environmental Modelling language is a computer language for construction of iterative spatio-temporal environmental models. It runs in the PCRaster interactive raster GIS environment that supports immediate pre- or post-modelling visualisation of spatio-temporal data.	

<b>PostGIS</b>	<b>Refractions research, Victoria, BC, Canada</b>
Type: GIS	<a href="http://postgis.refractions.net/">http://postgis.refractions.net/</a>
PostGIS adds support for geographic objects to the PostgreSQL object-relational database. In effect, PostGIS "spatially enables" the PostgreSQL server, allowing it to be used as a backend spatial database for geographic information systems (GIS)	

<b>PySal</b>	<b>Univ of Illinois, Spatial Analysis Lab</b>
Type: Mathematical/Statistical librar	<a href="http://geodacenter.asu.edu/pysal">http://geodacenter.asu.edu/pysal</a>
A Python Library for Spatial Analytical Functions (available in Sping 09) - implements spatial statistical methods in general and spatial regression analysis in particular using Python	

<b>QGIS</b>	
Type: GIS	<a href="http://www.qgis.org/">http://www.qgis.org/</a>
Quantum GIS (QGIS) is a user friendly Open Source Geographic Information System (GIS) that runs on Linux, Unix, Mac OSX, and Windows. QGIS supports vector, raster, and database formats.	

<b>R Spatial</b>	
Type: Mathematical/Statistical librar	<a href="http://cran.r-project.org/web/views/Spatial.html">http://cran.r-project.org/web/views/Spatial.html</a>
International Opensource project based on the R Project/language. The main areas covered include: Classes for spatial data; Handling spatial data; Reading and writing spatial data; Point pattern analysis;Geostatistics; Disease mapping and areal data analysis; Spatial regression; Ecological analysis. See also spdep and ade4 entries in this listing	

<b>Repast Symphony</b>	<b>Argonne National Lab, USA</b>
Type: Geosimulation	<a href="http://repast.sourceforge.net/">http://repast.sourceforge.net/</a>
Open source agent-based simulation package, cross-platform (Recursive Porous Agent Simulation Toolkit)	

<b>Rookcase</b>	<b>Laboratory for Paleoclimatology and Climatology, Univ of Ottawa, Canada</b>
Type: Statistical analysis	<a href="http://www.lpc.uottawa.ca/data/scripts/">http://www.lpc.uottawa.ca/data/scripts/</a>
Excel add-in for computing simple spatial autocorrelation (M Sawada). Several other GIS utilities are available from the LPC web page	

Product	Supplier
<b>SAGA</b>	<b>Abteilung für Physische Geographie Geographisches Institut Göttingen, Germany</b>
Type: GIS	<a href="http://www.saga-gis.org/">http://www.saga-gis.org/</a>
Open source GIS designed with geosciences in mind, especially terrain and hydrographic analysis. Powerful raster analysis and programmability	
<b>SAM</b>	<b>Instituto de Ciências Biológicas , Universidade Federal de Goiás, Brazil</b>
Type: Statistical analysis	<a href="http://www.ecoevol.ufg.br/sam/">http://www.ecoevol.ufg.br/sam/</a>
SAM is a compact but robust computer program designed as a package of statistical tools for spatial analysis, mainly for applications in Macroecology, Geographical Ecology and Biogeography. SAM offers a wide spectrum of statistical methods used in Surface Pattern Spatial Analysis, including a range of basic stats, autocorrelation analyses and regression models (GLIM, SAR, CAR, GWR etc)	
<b>SANET</b>	<b>University of Tokyo, Japan</b>
Type: Network analysis	<a href="http://sanet.csis.u-tokyo.ac.jp/">http://sanet.csis.u-tokyo.ac.jp/</a>
Spatial analysis on a network (A Okabe et al.) - an ArcGIS toolbox	
<b>SaTScan</b>	<b>SaTScan/Harvard University, USA</b>
Type: Cluster analysis	<a href="http://www.satscan.org/">http://www.satscan.org/</a>
Spatial, temporal and spatio-temporal analysis of geographic data. Particularly designed for disease pattern analysis and surveillance. SaTScan can be used to: Perform geographical surveillance of disease, to detect spatial or space-time disease clusters, and to see if they are statistically significant; Test whether a disease is randomly distributed over space, over time or over space and time; Evaluate the statistical significance of disease cluster alarms; Perform repeated time-periodic disease surveillance for early detection of disease outbreaks	
<b>S-Distance</b>	<b>Lab for spatial analysis and thematic mapping, Univ of Thessaly, Greece</b>
Type: Locational analysis	<a href="http://www.prd.uth.gr/sites/spatial_analysis/software/SdOverview_en.html">http://www.prd.uth.gr/sites/spatial_analysis/software/SdOverview_en.html</a>
Network and locational analysis (S Sirigos) - V1.0 scheduled for Q2/08	
<b>SDM</b>	<b>ESRI Arcscripts - author: Gary Raines, Language: Python</b>
Type: GIS tools	<a href="http://arcscripts.esri.com/details.asp?dbid=15341">http://arcscripts.esri.com/details.asp?dbid=15341</a>
Spatial Data Modeller, SDM, is a collection of geoprocessing tools for adding categorical maps with interval, ordinal, or ratio scale maps to produce a predictive map of where something of interest is likely to occur. The tools include the data-driven methods of Weights of Evidence, Logistic Regression, and two supervised and one unsupervised neural network methods, and a knowledge-driven method Fuzzy Logic	
<b>SITATION</b>	<b>Mark Daskin, Department of Industrial Engineering and Management Sciences, Northwestern University Evanston, IL, USA</b>
Type: Locational analysis	<a href="http://sitemaker.umich.edu/msdaskin/software">http://sitemaker.umich.edu/msdaskin/software</a>
Facility location software (M Daskin)	
<b>SOM Toolbox</b>	<b>Helsinki University of Technology Laboratory of Computer and Information Science, FINLAND</b>
Type: Neural networks	<a href="http://www.cis.hut.fi/projects/somtoolbox/">http://www.cis.hut.fi/projects/somtoolbox/</a>
Free MATLAB Neural Network toolbox primarily for Self Organising Maps (SOMs)	

## Product

## Supplier

### spdep

**R Project - Spatial section. See also <http://cran.r-project.org/web/views/Spatial.html>**

Type: Mathematical/Statistical library <http://cran.r-project.org/web/packages/spdep/index.html>

A collection of functions to create spatial weights matrix objects from polygon contiguities, from point patterns by distance and tessellations, for summarising these objects, and for permitting their use in spatial data analysis, including regional aggregation by minimum spanning tree; a collection of tests for spatial autocorrelation, including global Moran's I, APLE, Geary's C, Hubert/Mantel general cross product statistic, Empirical Bayes estimates and Assunção/Reis Index, Getis/Ord G and multicoloured join count statistics, local Moran's I and Getis/Ord G, saddlepoint approximations and exact tests for global and local Moran's I; and functions for estimating spatial simultaneous autoregressive (SAR) lag and error models, weighted and unweighted SAR and CAR spatial regression models, semi-parametric and Moran eigenvector spatial filtering, GM SAR error models, and generalized spatial two stage least squares models.

### SPLANCS - RPLUS

**R Plus development team**

Type: Statistical analysis <http://rss.acs.unt.edu/Rdoc/library/splancls/html/00Index.html>

Spatial analysis of point patterns. (R-Plus version is free)

### SPLANCS - SPLUS

**Dept of Mathematics, Univ of Lancaster, UK**

Type: Statistical analysis <http://www.maths.lancs.ac.uk/~rowlings/Splancls/>

Spatial analysis of point patterns. (S-Plus version). Requires S-plus (see also, RPLUS version)

### StarLogo

**MIT, Cambridge, MA, USA**

Type: Geosimulation <http://education.mit.edu/starlogo/>

Open source agent-based simulation package, cross-platform

### STARS

**Regional Analysis Lab, San Diego Univ., CA, USA**

Type: Spatio-temporal analysis <http://regionalanalysislab.org/index.php/Main/STARS>

Space-time analysis of regional systems. Some techniques mirror those in GeoDa (unrelated to the STARS logistics package). STARS is an open source environment written in Python that supports exploratory dynamic spatial data analysis. Dynamic takes on two meanings in STARS. The first reflects a strong emphasis on the incorporation of time into the exploratory analysis of space-time data. To do so, STARS combines two sets of modules, visualization and computation. The visualization module consists of a family of geographical, temporal and statistical views that are interactive and interdependent. That is, they allow the user to explore patterns through various interfaces and the views are dynamically integrated with one another, giving rise to the second meaning of dynamic spatial data analysis. On the computational front, STARS contains a set of exploratory spatial data analysis modules, together with several newly developed measures for space-time analysis.

### Surfit

**M.V. Dmitrievsky & V.N. Kutrunov**

Type: Specialised mapping <http://surfit.sourceforge.net/surfit/index.html>

Simple gridding and surface fitting program. Implements a functional minimisation algorithm for grid generation.

### SurGe

**Miroslav Dressler, Czech Rep**

Type: Specialised mapping <http://surgeweb.sweb.cz/>

Gridding/surface creation/interpolation and visualisation package, available as shareware

### SWARM

**SWARM development group, Albuquerque, NM, USA**

Type: Geosimulation <http://www.swarm.org>

Open source agent-based simulation package, cross-platform. Swarm is a library of object-oriented classes that implements the Swarm conceptual framework for agent-based models and provides many tools for implementing, observing, and conducting experiments on ABMs

### TAS (Whitebox)

**University of Guelph, Canada**

Type: Terrain analysis <http://www.uoguelph.ca/~hydrogeo/Whitebox/index.html>

Terrain Analysis System - Compact, stand-alone program. provides wide range of terrain analysis/hydrological analysis functions and index computations. Now superseded by WHITEBOX

## Product

## Supplier

### TatukGIS Viewer

### TatukGIS, Gdynia, Poland

Type: Viewer

<http://www.tatukgis.com/products/viewer/viewer.aspx>

The free TatukGIS Viewer opens most GIS/CAD and raster image file types and most ArcView, ArcExplorer, and MapInfo projects. Besides just opening and viewing files, the Viewer supports an extensive list of features including visual layer properties control, legend control, thematic mapping, spatial and attribute querying, custom labeling, on-map measurements, hyper-linking, PDF export and much more. The user interface is available in 16 languages.

### TAUDEM

### D Tarboton, Utah State Univ, UT, USA

Type: Terrain analysis

<http://hydrology.usu.edu/taudem/taudem5.0/>

Terrain Analysis Using Digital Elevation Models - ArcGIS Add-in/toolbar. Provides wide range of terrain analysis/hydrological analysis functions and index computations

### TNTMips

### Microimages, Lincoln, NA, Usa

Type: GIS

<http://www.microimages.com/>

Commercial generic cross-platform GIS developed from image processing background. Extensive analytics toolset.

### uDig

### Refractions Research (<http://www.refractions.net/>) Victoria, BC, Canada

Type: GIS

<http://udig.refractions.net/>

User-friendly Desktop Internet GIS (uDig) is both a GeoSpatial application and a platform through which developers can create new, derived applications

### UrbanSim

### Univ of Washington, Center for Urban Simulation

Type: Geosimulation

<http://www.urbansim.org/>

UrbanSim is a software-based simulation model for integrated planning and analysis of urban development, incorporating the interactions between land use, transportation, and public policy. It is intended for use by Metropolitan Planning Organizations and others needing to interface existing travel models with new land use forecasting and analysis capabilities.

### Vincenty

### Govt of Australia

Type: GIS tools

<http://www.ga.gov.au/earth-monitoring/geodesy/geodetic-techniques/calculation-methods.html>

Excel spreadsheet for computing ellipsoidal distances (methods link)

### Virtual Terrain Project

### VTP

Type: Visualisation (2D and 3D)

<http://vterrain.org>

3-D Terrain Modelling/Virtual Reality software. The goal of VTP is to foster the creation of tools for easily constructing any part of the real world in interactive, 3D digital form.

### VisualBots

### Mike Waite & family

Type: Genetic algorithms

<http://www.visualbots.com>

Collection of educational programs (BOTS) implemented in Excel VBA to illustrate a range of optimisation and other procedures, including genetic algorithms, cellular automation etc

### WinBUGS/GeoBUGS

### BUGS Project, MRC Biostatistics Unit, Cambridge, UK

Type: Statistical analysis

<http://www.mrc-bsu.cam.ac.uk/bugs/winbugs/geobugs.shtml>

The BUGS (Bayesian inference Using Gibbs Sampling) project is concerned with flexible software for the Bayesian analysis of complex statistical models using Markov chain Monte Carlo (MCMC) methods, GeoBUGS is an add-on module to WinBUGS which provides an interface for: \* producing maps of the output from disease mapping and other spatial models \* creating and manipulating adjacency matrices that are required as input for the conditional autoregressive models available in WinBUGS 1.4 for carrying out spatial smoothing.

Product	Supplier
<b>WindNinja</b> Type: Specialised mapping Wind grid modelling accounting for topography	<b>US Fire Service</b> <a href="http://www.firemodels.org/index.php/research-systems/windninja">http://www.firemodels.org/index.php/research-systems/windninja</a>
<b>WindWizard</b> Type: Specialised mapping Wind grid modelling accounting for topography, using Computational fluid dynamics (CFD) modelling - requires FlowWizard which is a commercial product from ANSYS Corp.	<b>US Fire Service</b> <a href="http://www.firemodels.org/index.php/research-systems/windwizard">http://www.firemodels.org/index.php/research-systems/windwizard</a>
<b>Xpress-MP</b> Type: Optimisation A suite of mathematical modeling and optimization tools used to solve linear, integer, quadratic, non-linear, and stochastic programming problems	<b>Dash Optimization, Northants, UK and International offices</b> <a href="http://www.fico.com/en/Products/DMTools/Pages/FICO-Xpress-Optimization-Suite.aspx">http://www.fico.com/en/Products/DMTools/Pages/FICO-Xpress-Optimization-Suite.aspx</a>
<b>ZDES</b> Type: Specialised data analysis Zone design system. University of Leeds, UK	<b>Dept of Geography, University of Leeds, UK</b> <a href="http://www.geog.leeds.ac.uk/software/zdes/">http://www.geog.leeds.ac.uk/software/zdes/</a>