Fact Sheet 4: What Software is Available to Help?

This fact sheet is the fourth of four fact sheets developed by ITRC to accompany its guidance titled *Geospatial Analysis for Optimization at Environmental Sites* (GRO-1) (available at www.itrcweb.org/gro-1). This fact sheet introduces the value and use of geospatial analysis to support optimization activities to project managers, program or financial managers, and stakeholders. Specifically, this fact sheet summarizes software tools that can help you to perform geospatial analysis.

Various software packages use geospatial methods. In fact, you may have used geospatial methods already and been unaware that these methods were built into the software. For example, some software packages that produce contour maps use kriging as the default method. Unless users specifically change the interpolation method, they may be unaware that a geospatial method is used to generate contours, grid maps, or other types of surface maps.

The Software section provides detailed information about a number of widely used software packages that apply the geospatial methods to optimization as described in the guidance. For each software package included, this section includes a general description of the software, sources, cost, system requirements, difficulty, references, and training and resources. Tables 7, 8, and 9 in the Software Comparison Tables section provide information about the individual software packages for easier comparison. These tables are available as a downloadable Excel workbook.

- Table 7 includes information about whether a software package can answer each of the questions identified for each project life cycle stage (also see the Geospatial Methods for Optimization Questions in the Project Life Cycle Stages section).
- Table 8 includes information about the operating system, costs, data input, and data output.
- Table 9 includes information about specific geospatial methods, which can be implemented with each software package.

A brief summary of these software packages is included in the table below; additional custom geospatial applications are also available. Note that not all of the packages are specifically designed for geospatial analysis of environmental data or specifically for environmental project optimization. Some are general statistical or geospatial packages that are intended for use in a variety of business or scientific applications, but are also helpful for geospatial analysis.

Summary of geospatial analysis software

Software	Ease of Use	Cost
ArcGIS	Moderate	$$
EVS/MVS	Complex	$$$
Global Mapper	Moderate	$
GMS	Moderate	$$-$$$
GRASS	Complex	Free
GS+	Moderate	$
GTS	Moderate	Free
GWSDAT	Easy	Free
HydroGeoAnalyst	Moderate	$$$
Isatis	Complex	$$$
Kartotrak	Moderate	$$$
Leapfrog Hydro	Moderate	$$$
MAROS	Easy	Free
R (geoR, geoRgim)	Complex	Free
RockWorks	Moderate	$-$$
SADA	Moderate	Free
SAS	Complex	$$$
SGeMS	Complex	Free

Software	Ease of Use	Cost
Summit Envirosolutions	Moderate	$
Surfer	Easy	$
Voxler	Easy	$
VSP	Easy	Free

Note

This list is based on the collective experience of the ITRC team with the specific software shown. This list does not include all software available. The omission of a software package should not be interpreted as disapproval of that software.

Key

$ = < $1,000

$$ = $1,000 – $5,000

$$$ = > $5,000

Ease of Use

Easy – A new user can learn this software with minimal training. The software has an intuitive graphical user interface (GUI) and data input/output interfaces easily with common file formats. Functionality of the software may be somewhat limited.

Moderate – This software is accessible enough for a new user to learn with some introductory training from tutorials or short courses but powerful enough to feature advanced capabilities for the expert user.

Complex – Considerable user skill and training are required to use this software. The software may not have a GUI and programming may be required to build or run a model.

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