Software Overview

Geospatial methods can be computationally intense, consequently, advances in computation power have led to wider application of these methods. Several new software applications can perform geospatial functions, and many existing software products have added geospatial features. Although geospatial methods may be unfamiliar to some, many people have already unknowingly used these methods. 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 the software uses kriging to generate contours, grid maps, or other types of surface maps.

This software overview is provided for project managers and does not replace a thorough review of the appropriateness of any software package. Prior to using a software package, verify its applicability and accuracy. Also, make sure that the assumptions and input requirements are understood for any geospatial methods used in making decisions. Note that not all of the software packages are specifically designed for geospatial analyses of environmental data or specifically for optimization. Some are general software packages intended for use in different business or scientific application areas. Consult with the software developer to ensure that the most current available version of the application is being considered prior to use.

ITRC, ERIS, and ECOS do not endorse or recommend specific technology, software, or providers, but rather provide information to help make better environmental decisions (see About ITRC for further discussion of this policy). Inclusion of a software in this guidance is not an ITRC endorsement of the software, and omission of a software package is not ITRC disapproval of that software. ITRC compiled this list based on the team's collective experience with the software. The list of software presented here is not comprehensive and does not imply preferences over other software.

As geospatial methods become more common in many scientific fields, software products capable of geospatial analyses will continue to be developed. Be aware that many organizations and companies restrict the installation of software on their computers, particularly those that require administration rights, and it may be difficult or impossible to install certain programs in some organizations.

The following attributes are provided in the description of each software package:

- General Description
- Source
- Ease of Use
- References
- Training and Resources

Table 6 summarizes the software packages described in this guidance.

Table 6. Summary of 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
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.