

# RaGIS

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**IRRI**

**International Rice Research Institute  
GIS-IP Laboratory**

## Raster GIS Tool

### About RaGIS

RaGIS, short for Raster GIS, is a mapping and GIS software for managing and analyzing spatial data. The different modules comprising the software allow one to view, manipulate and edit raster map files as well as to carry out multiple map queries and map algebra calculations.

### Installation

RaGIS runs in the Microsoft Windows environment. All files required for installing RaGIS are provided in the \RaGIS\_setup folder. Copy the entire folder into your computer, and run the setup program. By default the setup creates the path C:\Program Files\RaGIS where the program files are installed. You may add into this folder the sample data files provided, which are in the \Examples folder. You can run RaGIS by choosing it from Start/All Programs, or you may create a shortcut to the RaGIS.exe file on your desktop.

### Features

Besides the common utility, display, spatial query and analysis functions available in most commercial and freeware GIS, RaGIS has a couple of handy features for raster map storage and manipulation that make it unique.

- ★ The raster data that RaGIS uses are organized and stored in a popular database format which makes it very convenient to view the map and underlying database simultaneously, and to link with database management systems or with modeling software.
- ★ RaGIS has a utility for global searching and filling in, or substituting, values for problem grid cells (e.g. cells with missing or inadmissible values) in a raster map layer.

The full list of RaGIS features and their brief descriptions are provided below. Details on how to use the features are provided in [RaGIS Help](#).

### **Displaying map and database**

Utilities are available for viewing raster maps and the underlying database and simultaneously tracking values of grid cells across multiple windows (see [Using RaGIS/Working with Maps in RaGIS Help](#)).

### **Raster format conversion**

RaGIS raster maps are created by importing popular raster map formats - including ArcView ASCII raster file, IDRISI image file, and Surfer ASCII grid file - and converting these into RaGIS format. The same utility may be used for converting from any of these raster map formats into ArcView ASCII raster or Surfer ASCII grid files as well.

### **Map database maintenance**

RaGIS map layers belonging to the same theme (e.g. time series monthly rainfall) may be consolidated into one database (called series) by using the utility [Import RaGIS Map Layer](#). In addition the [Database Toolkit](#) in RaGIS contains file maintenance utilities including tasks for updating and repairing damaged data.

### **Reducing grid cell resolution**

Reducing the map's spatial resolution by decreasing the number of rows and columns can be done using the [Spatial Coarsening](#) utility in RaGIS, which allows four methods of assigning cell values in the coarsened map - maximum, minimum, average or random value. Coarsening reduces the map's file size, allowing faster display of the map.

### **Gap filling of map values**

RaGIS has a utility called [Filling Out Raster Map](#), which was developed specifically to deal with problem grid cells in a raster map by replacing missing or incorrect values with estimated values. The problem values could be missing values (-9999) generated by overlaying two raster maps derived from vector boundaries that do not exactly coincide – the raster equivalent of slivers. Another source of problem values commonly encountered may be values that are not reasonable due to GIS or data generation techniques, for example negative rainfall from spatial interpolation technique. Various methods are available to select the substitute value for replacing the problem values. The selected value may be searched within a prescribed area (e.g. within the province) or from the entire map.

### **Map filtering and algebraic calculation**

Filtering of one or multiple map layers within or across map series can be done using the [Map Query](#) tool. Algebraic calculations involving one or multiple map layers are carried out using the [Map Calculator](#). The results of map filtering and algebra may be viewed directly or saved as new map layers.