

ERMapper Data and ArcGIS

ERMapper is a complete image processing program but there are times when it is desired, or even necessary, to use these data in ArcGIS. Remote sensing software is often used to generate new layers of information from images. These data can then be used in ArcGIS for further analysis. Examples of these are landcover classifications and derived vegetation indexes. Another example is when you wish to use a satellite image, in ERMapper format, as a background image within your GIS map.

Using Images in ArcGIS

ERMapper images consist of two separate files. There is a large file in binary format which contains the actual image data. This has a base name with no file extension. The second file is in ASCII format and contains information about the image such as the data type, number of rows and columns, coordinate information, etc. This file has an extension of “.ers”.

By default, ArcGIS will not recognize these data files. ERMapper has a plug-in module for ArcGIS that permits direct reading of these files. You can now load an image, select display bands, and change image contrast.

Note: If you plan to do extensive work with these raster images in ArcGIS you should consider converting these images into the ERDAS Imagine image format.

Exporting Data to ArcGIS Raster Format

Most often you will want to export single-band data files, rather than images or multi-band data files, from ERMapper to ArcGIS for detailed analysis. This will typically be a land cover classification, but could also be an index such as NDVI. These data should be converted to an integer data type if it is in a different data type.

For this example we will consider converting an ERMapper classification data file into ArcGIS. Within ERMapper you will save this file as an ESRI BIL format. From the main menu select **File | Save As...** Using the “Files of Type” drop down box select “ESRI BIL and GeoSPOT (hdr)” and enter an appropriate file name. Click OK and specify the appropriate integer data type.

This “BIL” file can be opened directly in ArcGIS but in most cases ArcGIS will not recognize the coordinate information of the file. Before opening this file in ArcGIS open a new map and enter the appropriate coordinate information. From the ArcGIS main menu select: **View | Data Frame Properties | Coordinate System** and enter the correct information. Now you can add the new BIL file.

You should see a black display with a data range of 0 – 255. You can properly view this in ArcGIS as a classified image. Select **Layer Properties | Symbology** and under *Show* in the upper left corner click on **Classified**. Select a number of Classes that is one greater than the number of original classes. ArcGIS will create a Class 0 (zero) for null values

and one unique class for each data classification. You can now assign labels and colors to each class.

You may find it easier to work with class data in the polygon shapefile format. Using ArcToolbox select: **Conversion Tools | From Raster | Raster to Polygon**. The BIL file will be the input raster and the *Field* drop down box should be “Value” (the value of the data class). Enter a new file name and make sure “Simplify polygons” is selected and click OK.

The new file will be added to your map. You will need to have ArcGIS treat this as categories to properly display this file. Select **Layer Properties | Symbology** and under *Show* in the upper left corner click on **Categories | Unique Values**. In the *Values Field* drop down box select GRIDCODE and click on the *Add All Values* button. You can now label and color these classes as appropriate.

Exporting Data to ArcGIS Shapefile Format

Classification data can be exported to shapefile from within ERMMapper. This is generally the best option to use when you are only interested in a single class of data. For example you may want a shapefile of the forested area within a study area.

Using the ERMMapper main menu select **Process | Raster Cells to Vector Polygons**. The input raster will be your classified image. Enter a name for the new output vector file and leave Band as the default 1. Enter the individual class number in the field for *Cell Value* and check the boxes for *Smooth* and *Fill Polygons*. Finally export this vector file to a shapefile. Using the ERMMapper main menu select **Utilities | Export Vector and GIS Formats | ESRI Shapefile | Export**. Enter your new vector file in the *Dataset to Export* box and enter a base filename for the new shapefile in the *Export Path/Device Name* box. ERMMapper will append *_polygons* to your filename. You will need to define the coordinate system information for the shapefile in ArcGIS. Do this from ArcToolbox **Data Management Tools | Projections and Transforms | Define Projections**.