

Exporting image data from ERMapper to Excel

On occasion, it is useful to export image data to Excel for plotting or statistic analysis. In a recent example, Excel was used to make a scatter diagram between two layers of image data. ERMapper has a good scatter diagram analysis tool for investigating the data, but it's quite poor for creating and exporting publishable scatter diagrams with readable axes.

Step 1:

In this case, the first step was to design a two band algorithm for picking a MODIS Band 11 Brightness temperature from a thermal band data set and for computing an "Ice Index" from a separate reflective data set. The algorithm also selected a "subset" of the image, using the "extents" part of the geoposition window. Due to later problems in exporting null values, the Ice index formula was modified to give a value of 2 for null values; which is outside the normal index range (-1 to 1). Save the algorithm.

Step 2:

Save each data layer as a separate file. Turn off all data layers *except* the temperature layer and save this as an ERMapper file called Temperature.ers. Because this field of data has decimal values, the data type must be IEEE 4Byte Real. Make sure that the *Delete output transforms* box is checked. The pixel size was doubled to reduce the size of the file. The new dimensions were about 150 by 170. Remember also that the maximum column length in Excel is about 64000 (i.e. a 250 by 250 image).

Next the temperature was turned off and the ice index layer was turned on. We repeated the *File Save As* step using the above parameters. The file was named Ice.ers.

Step 3:

Each single-band data set is now exported to an ASCII text file **Utilities | Export Raster | XYZ ASCII grid**. The files were called Temperature.txt and Ice.txt. These files have three columns: latitude, longitude and the field variable. The two files will have slightly different sizes due to the different number types, but they have the same number of rows.

Step 4:

Each file is opened in Excel and combined. If the files are consistent, plotting latitude against longitude will give a straight line at 45 degrees. Now we remove the rows with "null" data by using the (Data) Filter (custom) function in Excel. All rows with the value 2 in the "ice index" column are removed. Now the scatter plot can be made by plotting temperature versus ice index. After some tinkering, a publishable figure may be created.

Comments: The above procedure is cumbersome due to two export idiosyncrasies of ERMapper: nulls and dual layers. Regarding the export of nulls, if nulls are not exported, the two files are not consistent pixelwise. The "XYZ ASCII grid with nulls" utility does not work either. Regarding dual band data, using the "XYZ ASCII grid" utility, we cannot get a clean four column output file. If these problems can be overcome, the export to Excel would be much simpler. "Imagine" provides an easier export tool.

Using ERDAS Imagine:

ERMMapper files can be exported easily to ASCII files using ERDAS Imagine. From the Imagine main toolbar select **Utilities | Convert Pixels to ASCII**. This opens the *Pixel to Table* window. From here you can open an ERMMapper file directly as input. After selecting the input file, click the Add button to move this name into the *Files to Export* box. You can select multiple files for this process. The output file will be an ASCII file (.asc). This new file will contain columns of longitude and latitude followed by data, one column for each band layer.

With ERMMapper it is necessary to first save a subset of your image and resample (change pixel size) to reduce the total output file size. In Imagine you can define a subset of the image to work with, as well as a sample interval, directly in the Pixel to Table window.