

## ***HighView's* free band combination tool for GLCF's Landsat ETM+ imagery**

*No prior knowledge on image analysis is required, and anyone can use it.*

*"Our land is so real and abundantly beautiful, and the imagery of our land is so captivating; as human being each of us has the potential to be a great artist and scientist, so let's explore the imagery of our land together."*

### **1. Installation of *HighView***

**Step 1:** Download a zipped installation file (size ~1 MB) from [www.geosage.com](http://www.geosage.com)

**Step 2:** Use WinZip to unpack the downloaded installation file and save a copy to a temporary folder (e.g., C:\tmp\).

**Step 3:** Double click "setup.exe" to install *HighView*.

### **2. Demonstration of band combination**

**Step 1:** Visit the website of the Global Land Cover Facility (GLCF) at <http://glcf.umiacs.umd.edu/index.shtml> or <http://www.landcover.org/>, and download publicly available Landsat TM/ETM+ imagery of your interest.

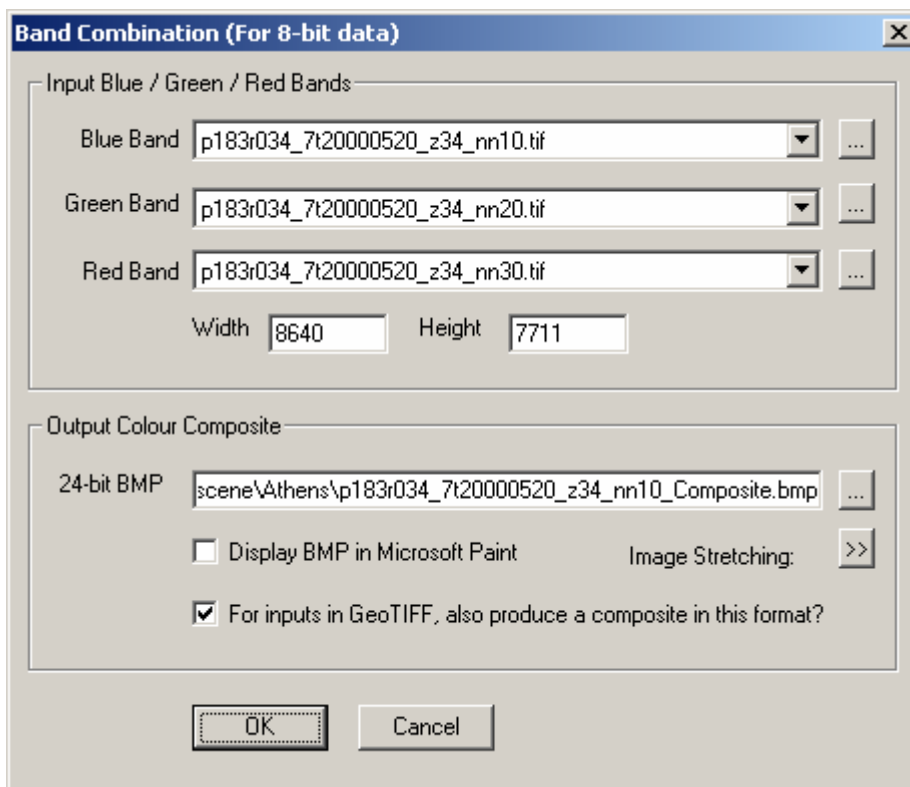
**Step 2:** Unzip the downloaded GeoTIFF files.

**Step 3:** Use *HighView's* "Band Combination" menu to make true- or false-colour composites.

Here is an example:

Assume that you have downloaded the Landsat ETM+ scene for Athens, Greece (WRS-2 path 183, row 034, 05/20/2000). The image size of each multispectral band is 8640 pixel × 7711 pixel, and the file size 63.5 MB, as shown in Figure 1. (Real images are demonstrated at [http://www.geosage.com/highview/gallery\\_athens\\_etm+.html](http://www.geosage.com/highview/gallery_athens_etm+.html))

Just fill in input file names and use default settings of image stretching, and results in 24-bit BMP format and/or GeoTIFF format will be produced. The file size of an output composite in 24-bit BMP format reaches 190 MB. (As you are processing a full Landsat scene, a fairly modern PC is required especially when you want to display the BMP.)



**Figure 1:** Main Graphic User Interface (GUI) of band combination.

To make a true-colour composite, you should use Landsat ETM+ blue band (band 1), green band (band 2), and red band (band 3); to make a false-colour composite, you may select any other band combinations, e.g., Landsat ETM+ band 2 (as blue), band 4 (as green), and band 7 (as red).

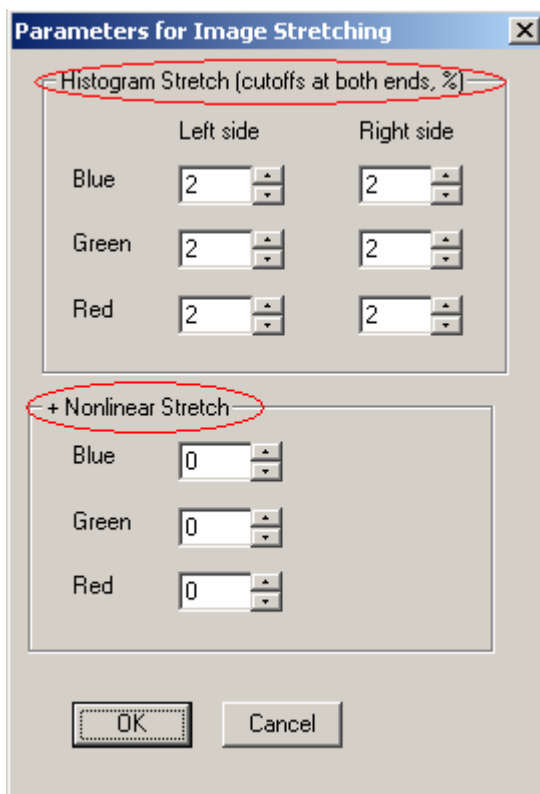
If all inputs are the same, a black/white composite will be produced.

A default output is a 24-bit BMP. If you wish to generate an output in GeoTIFF format, just enable a corresponding check box (see Figure 1).

**For output in 24-bit BMP:** Users can display and edit the bitmap in popular software such as Adobe PhotoShop or IrfanView.

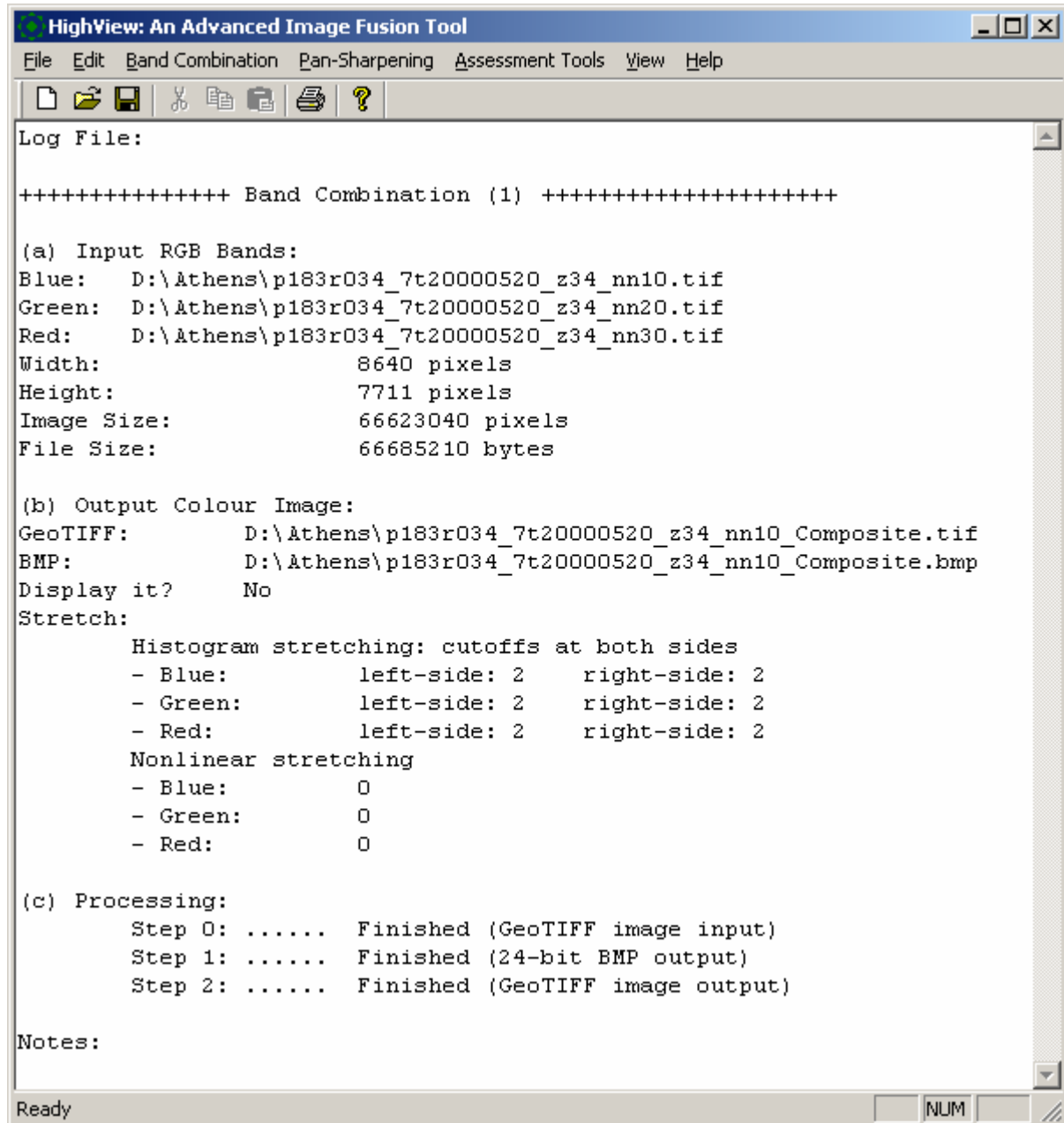
**For output in GeoTIFF format:** Users can display the colourful composite in GeoTIFF format conveniently in most GIS and remote sensing software, such as MapInfo and ArcGIS. The colour composite is often used as a base map, or an image backdrop for other vector-based GIS layers such as roads and shorelines.

Click ">>" button (Figure 1) for options of linear and/or nonlinear image stretches (Figure 2). Users can specify the % of pixels to be excluded in image stretches for each colour band. In most cases, it is not necessary to change the common choice of 2%. You may also wish to use some level of nonlinear stretches to improve the visual quality of the composite.



**Figure 2:** GUI for image stretches.

Progress information of the module running is displayed in the main window of *HighView* (see Figure 3).



**Figure 3:** Log file generated by a band combination run in *HighView*.