# Apply Contrast to Images

TNTmips, TNTedit, and TNTview allow you to create contrast tables to enhance the display of grayscale rasters (as individual images and as components of RGB raster layers) and for the color components in color-composite raster images (see the Technical Guide entitled *Spatial Display: Enhance Color Composite Images*). The Display process uses contrast tables to translate the cell values stored in a raster object into display brightness values each time the image is displayed. Contrast tables can improve the brightness, contrast, and color balance of displayed images.

The Apply Contrast process in TNTmips (Image / Contrast and Trend / Apply Contrast) lets you process one or more rasters objects using their contrast tables to create new raster objects which store the display brightness values directly as cell values. The contrast-enhanced cell values can then be used in further processing of the images if desired.

You can apply contrast to one or more grayscale rasters, or one or more color-composite rasters, but not both types at the same time. All of the selected rasters are shown in a list in the Apply Contrast window (see illustrations to the right). When you apply contrast to grayscale rasters, the list includes a Contrast field for each raster, which shows by default the contrast mode last used for the raster. Left click on this field to open a menu that lets you choose any contrast table that has been saved with the raster or any of the auto-contrast options (Linear, Normalize, Equalize, or Logarithmic). When you apply contrast to color-composite rasters, separate contrast option fields are shown in the list for the Red, Green, and Blue color components.

When you process grayscale rasters, the Output Type menu lets you choose to produce either 8-bit unsigned or 16-bit unsigned output rasters. A toggle button also lets you save a linear contrast table with each output grayscale raster. This nominal linear contrast table produces a display brightness equal to the cell value; its purpose is to prevent the Display process from applying an arbitrary auto-contrast method to the already-contrasted raster. (The output type and save contrast table options are not available when processing color-composite rasters.) Standard controls are provided for choosing a pyramid method and compression method.

Run   Add   Remove
Rasters   Selected   Remove All
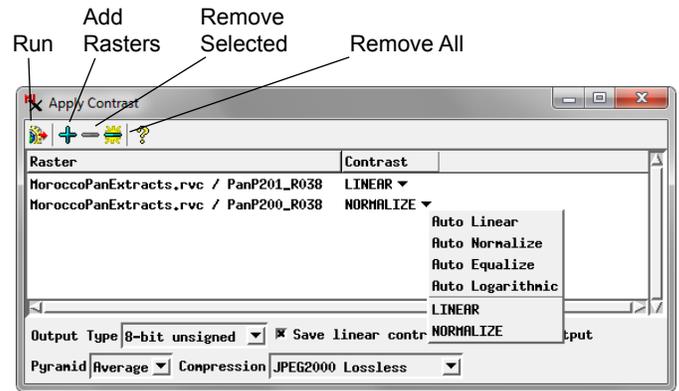
Apply Contrast window with grayscale rasters selected for processing. Left-click on the Contrast field in the list for any input raster to reveal a menu from which you can choose any contrast table you have saved for the raster or any of the Auto contrast options (Linear, Normalize, Equalize, Logarithmic).
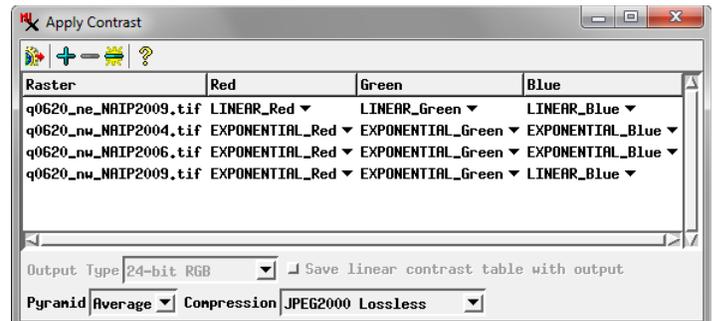
Apply Contrast window with RGB color composites selected for processing. Separate contrast options can be set for each color component (Red, Green, and Blue) for each input raster.
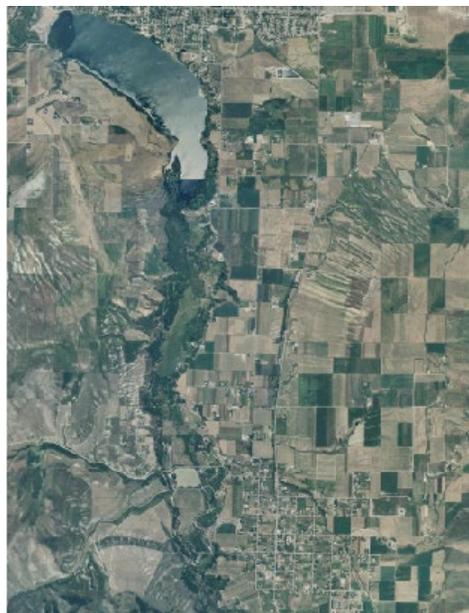
Left, a natural-color 1-meter orthoimage color-composite of an area in Utah, USA. Right, color-composite image produced by the Apply Contrast process using Exponential contrast tables for the Red and Green color components and a Linear contrast table for the Blue component.