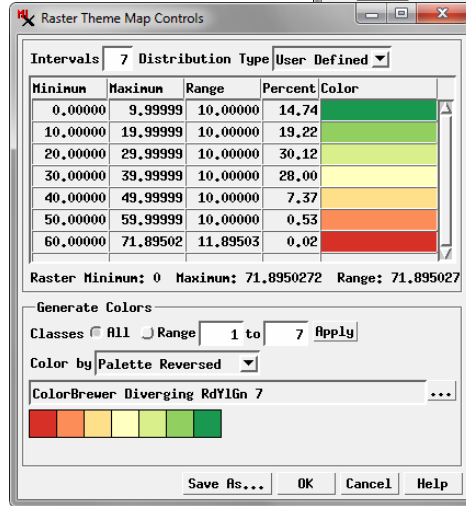
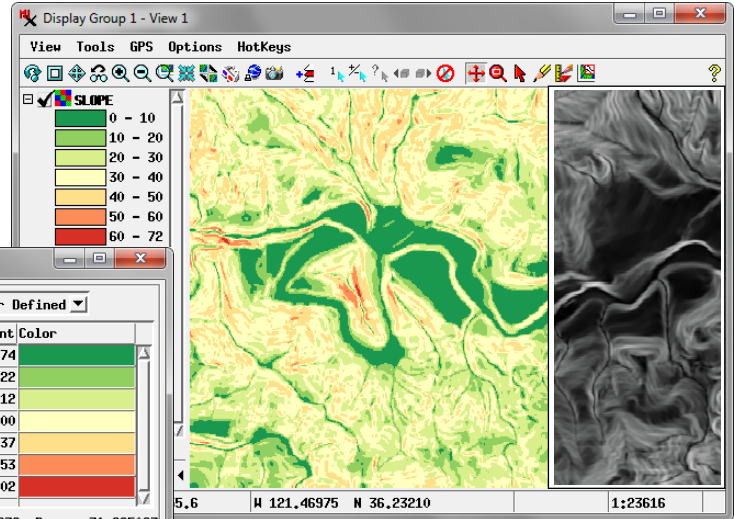


Raster Theme Mapping

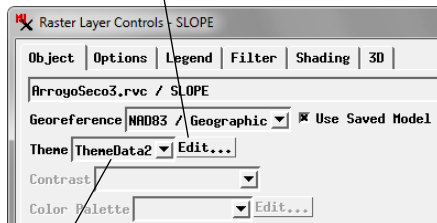
The Raster Theme Mapping option in the TNTgis Display process lets you display grayscale raster objects as a set of discrete numeric intervals with a different color assigned to each. As an alternative to grayscale display or a continuous color palette, the discrete interval colors provided by raster theme-mapping can simplify the display and emphasize overall spatial patterns in the data.

The Raster Theme Mapping option automatically generates interval categories and display colors from the cell values of the raster object. You can set the number of categories, choose from Equal Interval or Equal Count options for defining interval boundaries, or manually set the boundaries. You can generate interval colors using random colors, a color spread, from a color palette, or manually assign colors. You can save multiple themes for a raster object and choose any saved theme to use in the current session.

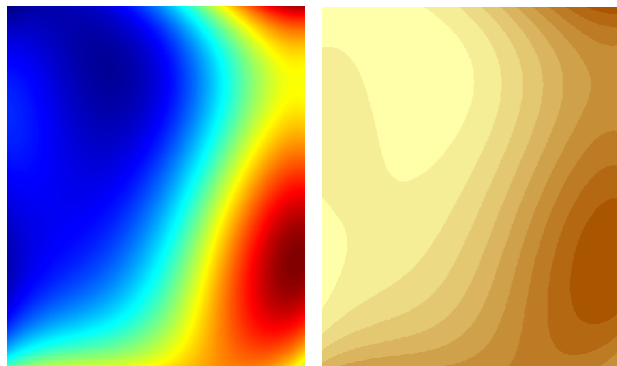


Raster theme-map of terrain slope values (raw grayscale slope image shown in inset). This User-Defined theme uses 7 intervals, each (except the last) representing a 10-degree range of slope angles. Interval colors are assigned from a color palette in reverse order from the palette (Palette Reversed option).

Press the Edit button to open the Raster Theme Map Controls window.



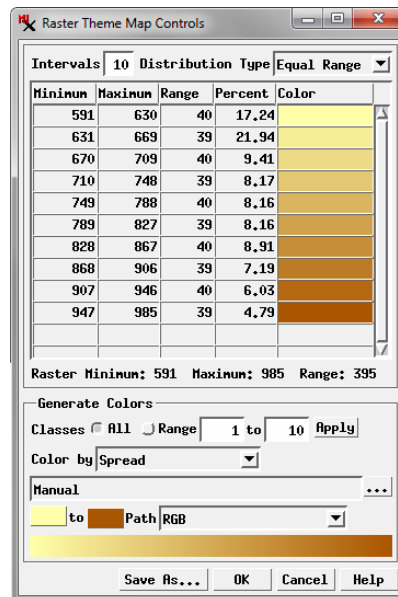
You can save multiple themes for a raster object and use the Theme menu to choose one to use for the current display.



Raster mapping variation in average rainfall in millimeters displayed with continuous rainbow palette (above left) and with a 10-interval equal-range theme (above right) using a simple color spread (illustrated to the right). The discrete interval colors provided by raster theme-mapping can emphasize the spatial patterns in the raster data.

Intervals and Distribution

To set up a raster theme map, open the Raster Layer Controls window and on the Object panel press the Edit button to the right of the Theme label and menu (see illustration to the left), which opens the Raster Theme Map Controls window. Enter a value in the Intervals field at the top of this window to set the number of value intervals (categories) to use (the default number of intervals is 10). The boundaries between intervals are set automatically from the global range and the option you choose from the Distribution Type menu. The Equal Count option assigns an approximately equal number of raster cells to each range, while the Equal Intervals option sets an equal numeric range for each interval. (The Equal Count option is available for integer raster data types but not for floating-point rasters.)



The tabular list in the Raster Theme Map Controls window shows for each interval the minimum and maximum values, range, and percentage of cells in the interval. This list automatically updates when you change the number of intervals or the distribution type.

You can customize the theme intervals by editing the minimum or maximum values, which automatically sets the Distribution Type menu to the User Defined option. Adjacent ranges are automatically adjusted in response to each change.

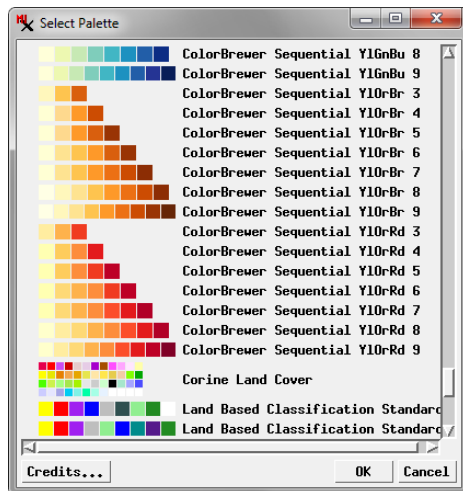
(continued)

Color Assignment

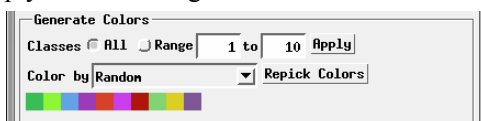
The Generate Colors box at the bottom of the Raster Theme Map Controls window provides controls for creating a set of colors to use. The *Color by* menu provides several options for automatically generating colors: Palette Sequential, Palette Reversed, Random in Palette, Random, and Spread. These methods are described below. The Classes controls let you specify how the generated colors are applied to the set of intervals. The default setting, All, applies the color generation operation to the entire range of intervals. If you turn on the Range button, you can use the numeric fields to the right to apply the operation only to a specific contiguous range of intervals. After choosing a color method and class range, press the Apply button to update the colors in the interval list. You can also manually set the color for any intervals by left-clicking on a color sample to open the Select Color window.

The Palette Sequential, Palette Reversed, and Random in Palette methods generate colors from a selected palette of discrete colors. The name of the current palette is shown in the text field below the *Color by* menu (see illustration at the top of the previous page); press the pushbutton to the right of this field to open the Select Palette window to choose a palette. A number of the available palettes provide color progressions with varying numbers of discrete colors, while others simply provide an assortment of colors. The Palette Sequential method assigns the first palette color to the first interval, the second palette color to the second interval, and so on. The Palette Reversed method assigns colors from the palette in the reverse order, starting with the last color in the palette. The Random in Palette method assigns the palette colors to intervals in random order. Be sure to choose a palette with at least as many colors as there are intervals in your theme, otherwise more than one interval will be assigned the same color. A warning message is shown when you press the Apply button if there are fewer palette colors than intervals.

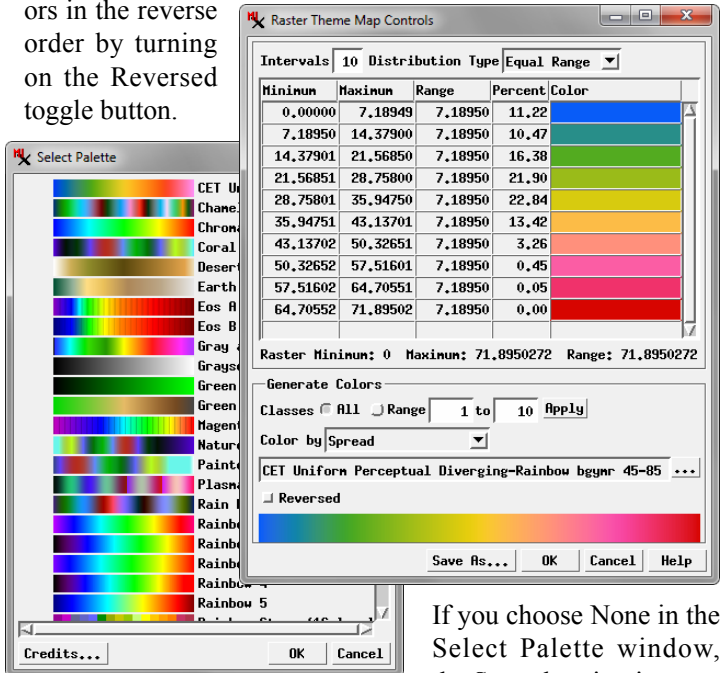
The Random color generation method generates a set of random colors for the intervals. The candidate set of colors is shown below the *Color by* menu (see illustration below). You can press the Repick Colors pushbutton to create a different set of random colors; press the Apply button to assign these colors to the theme intervals in the order in which the colors are shown.



The Random color generation method generates a set of random colors for the intervals. The candidate set of colors is shown below the *Color by* menu (see illustration below). You can press the Repick Colors pushbutton to create a different set of random colors; press the Apply button to assign these colors to the theme intervals in the order in which the colors are shown.



When you choose the Spread color option, interval colors are sampled from a “continuous” color palette of your choice or from a manual color spread that you design. The color sampling uses the full color range of the palette or spread and maintains a consistent separation in palette position for successive colors. The name of the current continuous palette is shown in the text field below the *Color by* menu (see the illustration below); press the pushbutton to the right of this field to open the Select Palette window to choose a continuous color palette. The palette colors are shown at the bottom of the window. You can sample the colors in the reverse order by turning on the Reversed toggle button.



If you choose None in the Select Palette window, the Spread option is set to the Manual mode (see illustration at the bottom of the previous page). A pair of color buttons are shown for setting the start and end of the spread. Clicking on either button opens the Choose Color window from which you can choose a color from a palette or set exact color values. The Path menu provides a choice of color models for creating the spread: RGB, HIS CW (clockwise), HIS CCW (counter-clockwise), HBS CW, and HBS CCW. The resulting spread is shown at the bottom of the window; press Apply to generate colors for the theme intervals.

Saving and Using Raster Theme Maps

Raster theme map settings are saved as a subobject of the raster object, so you can save and use multiple themes for the same raster object. Pressing the OK button on the Raster Theme Map Controls window saves the current theme map settings; if no theme has been previously saved, the Save As window opens so you can name the object. After a theme has been saved, pressing [OK] updates that theme with any changes you have made. You can press the Save As button instead to save the changes to another theme subobject. The saved theme subobjects (if any) are listed on the Theme menu in the Raster Layer Controls window, from which you can select a theme to use for the current display. Choosing a theme from this menu automatically disables the Contrast and Color Palette menus. Choose None from the Theme menu to discontinue use of the theme and reactivate the Contrast and Color Palette menus.