

Display

View and Analyze Raster Profiles

The GeoToolbox lets you create profile views showing how cell values vary along a path of any shape on 1 or more rasters. Two types of views can be generated by Profile View tool: raster cell values (y-axis) plotted versus distance (x-axis) or raster cell values (y-axis) plotted versus raster number in a series of selected rasters (x-axis). This Technical Guide illustrates the capabilities of the Profile View Tool to create and analyze profiles of paths of any shape versus distance. You can find more information about plotting raster cell value versus raster number in a series of selected rasters in the Technical Guide entitled *Graph Values from Multiple Raster by Cell Location*.

- ① Display any reference object and in the View window, click on the GeoToolbox icon.

GeoToolbox icon

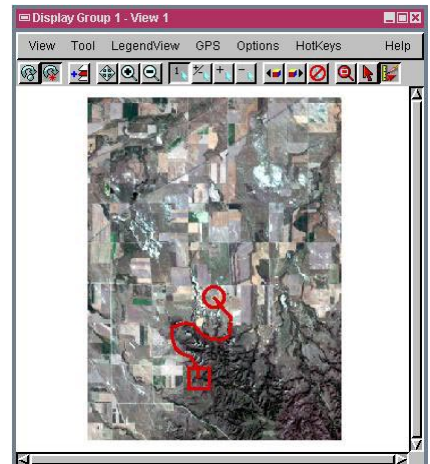


- ② In the GeoToolbox window, select the desired drawing tool to draw the path or geometric shape.



Drawing Tools that can be used for profile viewing.

- ③ In the view window, draw the path to use for the profile.



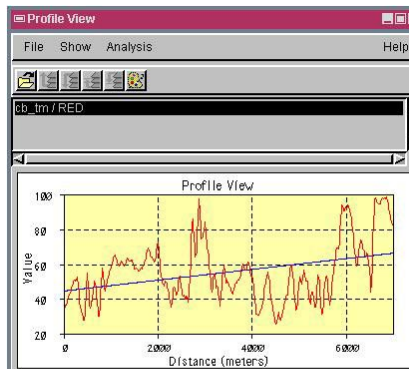
In the illustration above, the path drawn by the line tool over a multicomponent raster is shown.

- ④ In the GeoToolbox window, click on the Profile icon to open the Profile View window.

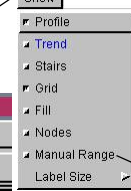
The Profile icon becomes active only if a path or geometric shape is drawn using an appropriate drawing tool.



If there is no raster in the view or if there are many rasters in a composite view, you are prompted to select the raster(s) for profile viewing when you click on the Profile icon. Otherwise, the raster object in the first raster layer is selected for the profile view by default. The red component is selected by default if this layer is a RGB composite raster.



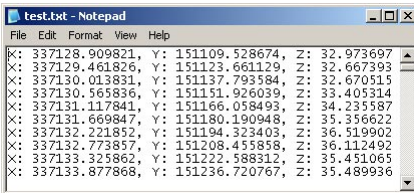
Sets the order of the polynomial regression fit to the actual profile values. The higher the trend order, the more closely the trend conforms to the profile.



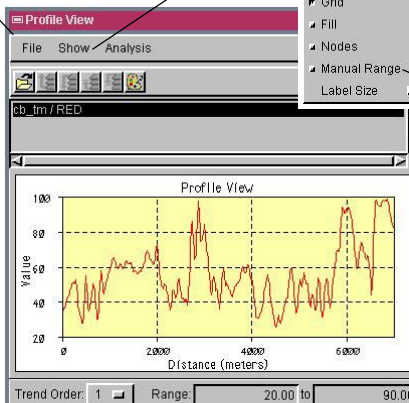
In the illustration to the left, the profile created for the red component of the reference raster is displayed with the regression line (trend).

The start value and interval for the vertical scale are set according to the raster object's minimum/maximum cell values for the path. These values are automatically adjusted to be divisible by 1, 2, 5, or power of a multiple of 10. This automatic adjustment is also applied when the vertical scale range values are entered manually.

Saves the map coordinates of the points defining the path in a text file.

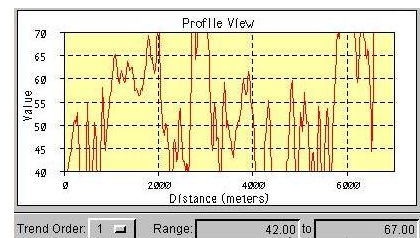


This is a portion of the text file of the X, Y, Z values of the path used for the profile. Note that the X, Y, Z values are saved in map coordinates and meters (NAD27/SPCS27 Nebraska North zone (m) in this example). These values are saved in the Coordinate Reference System (CRS) of the display group and automatically match to the CRS of the first raster or first layer displayed by default. Select Display/Settings from the Display Manager menu to change the CRS of the display group.

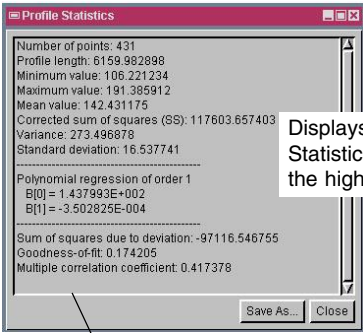


The minimum and maximum cell values of this profile are 24.8 and 98.7 respectively. The range values for the vertical axis were automatically adjusted to 20 and 100.

Toggle on this button to manually enter the range values for the vertical axis.



The range for the vertical axis was automatically adjusted to 40 and 70 to view the profile within the manually entered range of 42 and 67.



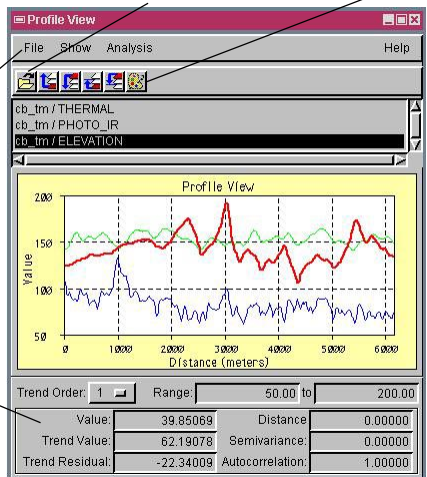
Displays Profile Statistics window for the highlighted raster.



Saves snapshot of the Profile View.

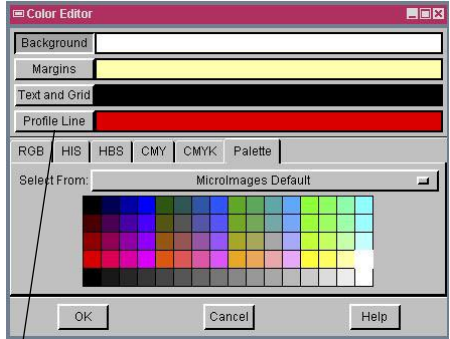
The statistics in the Profile Statistics window and Profile View window are for the highlighted raster. When you highlight another raster, the values are updated automatically in the Profile View window. However, you need to close and reopen the Profile Statistics window to view the updated information.

Opens the standard Raster Selection window to add rasters not being viewed to the list. These rasters will not be added to the View window but their profiles for the current path are added to the profile view.



The illustration above shows the profiles for the three rasters in the graph with the colors of each set using the Color Editor window.

Change the color of the profile, background, margins, text and grid for the raster selected in the list.



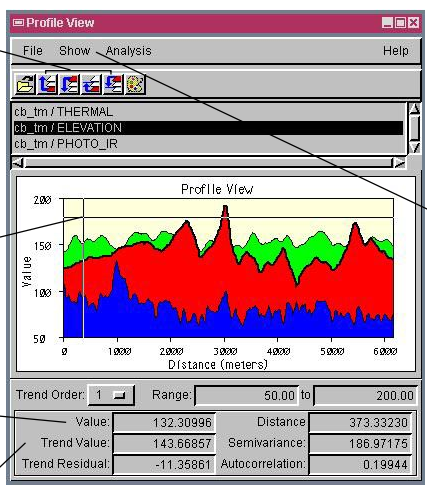
Profile line color applies only to the highlighted raster's profile. When the raster name is selected, its profile line color is darker. For example, in the illustration to the left, the ELEVATION raster corresponding to the red profile is highlighted.

Note that these icons are inactive when one raster is selected for profile view.



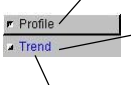
Click to move the selected raster to the top or the bottom of the list.

Click to raise or lower the selected raster in the list.

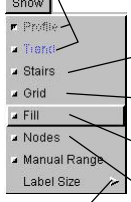


The illustration above shows the profiles of the three rasters when the Fill button is toggled on and the order of the rasters in the list are rearranged for better view.

This button is always toggled on by default to view profile as a continuous curve. It is inactive and can not be toggled off if multiple rasters are selected for profile view.



Toggle on to view the polynomial regression line calculated for the profile.

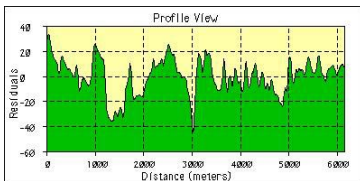


View the profile as a series of pairs with each step representing a value.
 Places a grid over the graph.
 Fills the area beneath the profile line with a color.
 Places a node at junction of two raster cells.

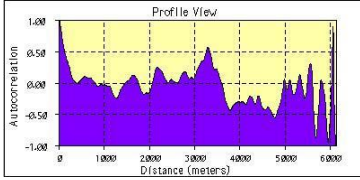
When you click in the Profile View horizontal and vertical reference lines are generated from the point clicked and statistical information in the Profile View window is updated for the point clicked

This field on the Information panel shows the value where the vertical reference line intersects the profile of the highlighted raster.

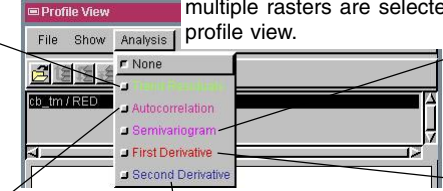
The value where the vertical reference line intersects the trend line of the highlighted raster.



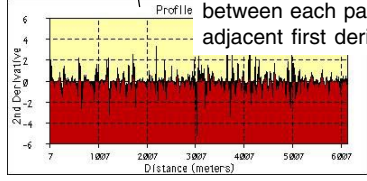
Residuals are the difference between actual values and the trend value.



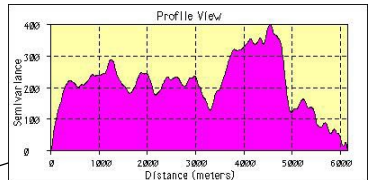
Autocorrelation compares neighboring cell values and calculates a correlation for each adjacent pair of cells in the profile.



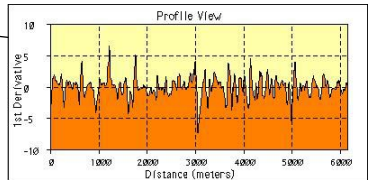
toggling on any button on the Analysis menu lets you view the associated profile statistics on a graph. This menu is inactive if multiple rasters are selected for profile view.



The Second Derivative computes the difference between each pair of adjacent first derivatives.



Semivariance compares the two neighbouring cells and calculates their relatedness.



The First Derivative computes the difference between neighboring cells along the profile.