

Here is a code fragment that creates a color index wave that varies from blue to red:

```
Function CreateBlueRedColorIndexWave(numberOfColors, zMin, zMax)
    Variable numberOfColors
    Variable zMin, zMax                // From min, max of contour or image data

    Make/O/N=(numberOfColors,3) colorIndexWave
    Variable white = 65535             // black is zero
    Variable colorStep = white / (numberOfColors-1)

    colorIndexWave[][0]= colorStep*p // red increases with row number,
    colorIndexWave[][1]= 0           // no green
    colorIndexWave[][2]= colorStep*(numberOfColors-1-p) // blue decreases

    SetScale/I x, zMin, zMax, colorIndexWave // Match X scaling to Z range
End
```

Log Color for Contour Traces

You can obtain a logarithmic mapping of z level values to colors using the Log Color checkbox in the Contour Line Colors dialog. This generates a `ModifyContour logLines=1` command. In this mode, the colors change more rapidly at smaller contour z level values than at larger values.

For a color index wave, the colors are mapped using the $\log(\text{color index wave's } x \text{ scaling})$ and $\log(\text{contour } z \text{ level})$ values this way:

$$\text{colorIndexWaveRow} = (\text{nRows}-1) * (\log(Z) - \log(xMin)) / (\log(xmax) - \log(xMin))$$

where,

```
nRows = DimSize(colorIndexWave,0)
xMin = DimOffset(colorIndexWave,0)
xMax = xMin + (nRows-1) * DimDelta(colorIndexWave,0)
```

The `colorIndexWaveRow` value is rounded before it is used to select a color from the color index wave.

A similar mapping is performed with color tables, where the `xMin` and `xMax` are replaced with the automatically determined or manually provided `zMin` and `zMax` values.

Overriding the Color of Contour Traces

You can override the color set by the Line Color subdialog by using the Modify Trace Appearance dialog, the **ModifyGraph** command, or by Control-clicking (*Macintosh*) or right-clicking (*Windows*) the graph's plot area to pop up the **Trace Pop-Up Menu**. The color you choose will continue to be used until either:

1. The trace is removed when the contours are updated, because the levels changed, for instance.
2. You choose a new setting in the Line Color subdialog.

Contour Fills

You can specify colors or patterns to fill contour levels. To fill all contour levels with colors, check the Fill Contours checkbox in the Modify Contour dialog. To fill individual contour levels with colors or patterns, use the Contour Fill controls in the Modify Trace Appearance dialog. You can use the Add Annotation dialog to create a legend for contour fills.

Programatically, to turn contour fills on for all contour levels, execute:

```
ModifyContour <contour instance name>, fill=1
```