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Subject: Re: How to plot shaded relief image  
Posted by [JMB](#) on Wed, 09 Jan 2008 15:49:52 GMT  
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> 1) I have to do this without gridview, because gridview does not  
> open it's code.  
> 2) I have try the SHADE\_SURF with top view, it's good. But I want  
> to find a 2D way to do this.

Hi Dave,

Did you already find a "2D" way ?

I tried this method that works pretty good to get a shaded relief from  
a digital elevation model (DEM).

- First you need to create a 3x3 matrix that represents the incident  
light with which you want to illuminate your DEM.
- Then you have to convolve your DEM with this matrix. You will get a  
kind of shading matrix.
- The last step consists in mixing your colorized DEM with this  
shading matrix (which you can stretch according to get the expected  
light/shadows contrast).

; Read the dem into the dem variable (NxM matrix)

```
dem=read_tiff('dem.tif')
```

; Edit a 3x3 matrix to represents the light  
; in this example the light comes from the bottom (south)

```
light=[[1,1,1],[0,0,0],[-1,-1,-1]]
```

; convolution of the dem with the 3x3 matrix

```
shading=convol(float(dem),float(light))
```

then you have several ways to use your shading matrix to enhance your  
relief plot.

adding or multiplying the 3 channels of your colored dem with the  
stretched shading matrix.

I let you test...

Jérôme

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