Subject: Re: How to plot shaded relief image
Posted by JMB on Thu, 10 Jan 2008 11:56:02 GMT
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Very simple example in easy case:
South illumination, only sun angle (i) can be set:

```
;************************************************************ *****
dem=read_tiff('dem.tif')
dims=size(dem,/dimensions)

; Edit a 3x3 gradient operator (vertical)

gradv=[[1,1,1],[0,0,0],[-1,-1,-1]]

; convolution of the dem with the 3x3 matrix

gradient=convol(float(dem),float(gradv))

; Sun angle respect to zenith (0 = vertical light, 90 = horizontal
light)

i=60
cosi=cos(i*!pi/180.)
sini=sin(i*!pi/180.)

; resx = Dem horizontal resolution in meter (needed for normalization)

resx=90 ; SRTM at 90 meter resolution in this test example
resxmat=make_array(dims[0],dims[1],value=2*resx) ; matrix used for the
scalar product

; Computation of the shading matrix:
; Scalar product of incident vector and normal gives cosinus angle

Norm=1/(sqrt(gradient^2+(2*resx)^2)) ; Normalization

costeta=Norm*(cosi*resxmat-sini*gradient)>0

window,0,xsize=dims[0],ysize=dims[1]
tvscl,dem
window,2,xsize=dims[0],ysize=dims[1]
tvscl,costeta

end
;************************************************************ *****
```

Cheers,

Jérôme