
Subject: shaded relief

Posted by [greg michael](#) on Fri, 19 Jan 2007 09:45:49 GMT

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I want a method to generate fast shaded relief views from a surface elevation grid (pixel for pixel orthogonal views which overlay)

I tried using direct graphics with something like:

```
shade_surf,dtm,image=sh,az=0,ax=90,position=[0,0,768,768],tick=0,xstyle=1,ystyle=1
```

This works, except that the z-scale is auto-scaled producing an unrealistic exaggeration. shade_surf doesn't take an /isotropic keyword.

I retried with object graphics, and after a lot of tinkering got it to work:

```
function gm_ortho_shade,z,mpp,texture=texture ;z - DTM, metres; mpp -  
horizontal metres per pix  
dim=size(z,/dim)  
x=findgen(dim[0])*mpp  
y=findgen(dim[1])*mpp  
  
oModel = OBJ_NEW('IDLgrModel',lighting=1);,depth_cue=[-1,1]  
obj=[omodel]  
if arg_present(texture) then begin  
  oImage=OBJ_NEW('IDLgrImage',texture);,greyscale=1)  
  obj=[obj,oimage]  
  oSurface = OBJ_NEW('IDLgrSurface', z,x,y, style=2,  
color=[128,255,255],texture_map=oImage,shading=1);, color=[255,255,255]  
endif else begin  
  oSurface = OBJ_NEW('IDLgrSurface',z,x,y, STYLE = 2,  
color=[255,255,255], shading=1,shininess=128.,specular=[0,0,0])  
endelse  
obj=[obj,osurface]  
  
oLight=obj_new('IDLgrLight',type=2, location=[-1000,1000,1000])  
oModel -> add, oLight  
obj=[obj,olight]  
  
oModel -> Add, oSurface  
oSurface->GetProperty,XRange=xr,YRange=yr,ZRange=zr  
  
mx=yr[1]>xr[1]  
r=(yr[1]>xr[1])/(yr[1]<xr[1])  
f=r/mx ;make a scaling factor for the largest of x, y.  
oSurface->SetProperty,XCoord_Conv=[0,f], YCoord_Conv=[0,f],
```

```
ZCoord_Conv=[0.,f]
```

```
oView =
```

```
OBJ_NEW('IDLgrView',projection=1,VIEWPLANE_RECT=[0,0,xr[1]/m x*r,yr[1]/mx*r])
```

```
oView -> Add, oModel
```

```
buffer=obj_new("idlgrbuffer",dimensions=dim)
```

```
buffer->draw,oView
```

```
(buffer->read())->getproperty,data=img
```

```
obj_destroy,[obj,buffer,oview]
```

```
return,img
```

```
end
```

The problem is that it's much slower than the direct graphics method.

I wonder if anyone has anyone has any suggestion to force shade_surf to be isotropic? Or otherwise to speed up the object way?

Many thanks,

Greg
