

I am having a problem getting back to the original lat/lon coordinates from device coordinates after mapping geographical data with SHADE_SURF.

In detail...

I am trying to use SHADE_SURF to plot a digital elevation model (DEM) of

Antarctica (and other areas), given as a uniformly spaced lat lon grid.

First, MAP_SET was used to define a projection. Then MAP_IMAGE was used to warp the 2d DEM to an image. Then SHADE_SURF was used to plot the image.

THE SEQUENCE OF COMMANDS HERE

```
map_set, $  
    /grid, /continent, /cyl, /isotropic, $  
    latCenter, lonCenter, $  
    limit=[minLat,minLon,maxLat,maxLon] , $  
    e_continents={fill:1}; , color:white}  
  
imagedem=map_image(datasmall,startx,starty,latmin=minlat,lat max=maxlat,  
$  
    lonmin=minlon,lonmax=maxlon)  
  
set_shading,light=[0,0,1],value=[100,255]  
shade_surf,imagedem, image=testt,ax=90,az=0,zrange=[min(datasmall), $  
    1.5*max(data small)], xstyle=4,ystyle=4
```

Once the image is on the screen, we want to use the mouse to select a region for zooming. Knowledge of the lat/lon bounds of the region is needed for selection of ancillary data such as satellite ground tracks that pass through the region.

The obvious solution to this is to use TV rather than SHADE_SURF, but I've been asked specifically to produce a map with shaded relief rather than an image that would be produced by TV.

PROBLEMS:

1. The resolution of the DEM seems to be severely degraded by MAP_IMAGE.

2. SHADE_SURF overrides the coordinate system set up by MAP_SET, so we no

longer have a way to relate the device coordinates to lat/lon.

3. The size of the array output by SHADE_SURF is not the same size as the

size of the array given to it -- i.e., after issuing the command.

```
IDL>q=dist(200)
```

```
IDL> shade_surf,q,image=p,ax=90,az=0
```

```
IDL> help,q,p
```

```
Q          FLOAT    = Array[200, 200]
```

```
P          BYTE     = Array[393, 295]
```

P and Q are not the same size.

QUESTIONS:

1. Are there any other ways to plot lat/lon grid dem using SHADE_SURF for

different projections?

2. Is there a way to force SHADE_SURF to produce an output that is the same

size as its input?

3. Is there any way to get lat/lon back after using SHADE_SURF?

Regards,

Donghui

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Donghui Yi

Raytheon ITSS

Phone: 301-614-5877

Fax: 301-614-5644

Code 971 (Oceans and Ice Branch)

Goddard Space Flight Center

Greenbelt, MD 20771

Email: donghui@icesat2.gsfc.nasa.gov

Subject: Re: shade

Posted by [Pavel A. Romashkin](#) on Mon, 21 May 2001 15:35:45 GMT

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I'd suggest plotting the polygon first and then overlaying the plot.

Cheers,

Pavel

Amar Nayegandhi wrote:

>
> Hi,
> How do I shade a polygon(rectangle) with a color such that I can plot
> over an existing plot and be able to see the initial plot as well as the
> shaded region.
> thanks,
> amar
