
Subject: using cgSurface to produce a scatter 3D plot with 4th dimension

Posted by on Wed, 07 Mar 2012 11:16:54 GMT

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Hi,

I have a datacube like this and two arrays with the values for the 3 axes

```
L1      DOUBLE  = Array[100]
L2      DOUBLE  = Array[100]
SINF    DOUBLE  = Array[100]
XI2MAP  DOUBLE  = Array[100, 100, 100]
```

I select a number of points using where() and now want to create a 3D plot of these points and use the color to represent their value. I managed to do this with cgsurf:

```
max_xi    = 800
select    = where(xi2map LT max_xi,count)
WhereToMulti, xi2map, select, Col, Row, Frame
xi2       = xi2map[col,row,frame]
symColors = Fix(BytScl(xi2))

cgLoadCT, 3
cgSurf,
  dist(100),l1,l2,xrange=[min(l1),max(l1)],yrange=[min(l2),max(l2)],zrange=[min(sinf),max(sinf)],xstyle=1,ystyle=1,$
  /NoErase, xtitle='lambda_1',ytitle='lambda_2',ztitle='stability',/
  nodata,/window,/save

cgAxis,XAxis=1,/T3D,XStyle=1,/window
cgAxis,YAxis=1,/T3D,YStyle=1,/window
cgAxis,ZAxis=0,/T3D,max(l1),min(l2),/window
cgAxis,ZAxis=0,/T3D,max(l1),max(l2),/window

cgColorbar, Divisions=4, Minor=5, Format='(F0.2)',
  Range=[min(xi2map[select]), max(xi2map[select])],title='Xi2',/add

cgControl, Execute=0
FOR i=0,count-1 DO BEGIN
  cgplots,[l1[col[i]],l1[col[i]],l2[row[i]],l2[row[i]],
  [sinf[frame[i]],min(sinf)],color=cgcolor('light gray')$
  , /T3d,/add
ENDFOR

FOR i=0, count-1 DO BEGIN
```

```
cgplots,l1[col[i]],l2[row[i]],min(sinf),/  
t3d,psym=3,symsize=1.0,color=cgColor('black'),/add  
ENDFOR
```

```
FOR i=0, count-1 DO BEGIN  
cgplots,l1[col[i]],l2[row[i]],sinf[frame[i]],/  
t3d,psym=symcat(16),symsize=2,color=cgColor(StrTrim(symcolor s[i],2)),/  
add  
ENDFOR  
cgControl, Execute=1
```

that's pretty much how David Fanning explained it in his traditional graphics book (pages 185-197). Now I am trying to get this working with cgsurface so I can rotate and zoom my xi2 map. Is this even possible with cgsurface since it only accepts the data in 2D?
