Subject: Help in modifying code
Posted by jim.blackwell on Mon, 04 Nov 2002 15:20:42 GMT
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Hi,

Found this code in the archives. I don't recall who wrote it, but here's the question. I have a dataset that I need to have represented as a vector field (as this code does for a cube with vectors eminating from one corner). The data file contains for each X, Y, Z point in space 3 vector component values. I'd like to use this code, but am having difficulty in figuring out how to modify it to read and use the data file I have.

Any help would be appreciated

Jim Blackwell

```
----------------------------cut
 here---------------------------------------------------------- ----------
function fx,x,y,z
xc=-0.2
yc=-0.2
zc=-0.2
r=sqrt((x-xc)^2+(y-yc)^2+(z-zc)^2)
return,(x-xc)/r^2
end

function fy,x,y,z
xc=-0.2
yc=-0.2
zc=-0.2
r=sqrt((x-xc)^2+(y-yc)^2+(z-zc)^2)
return,(y-yc)/r^2
end


function fz,x,y,z
xc=-0.2
yc=-0.2
zc=-0.2
r=sqrt((x-xc)^2+(y-yc)^2+(z-zc)^2)
return,(z-zc)/r^2
end

pro vectfield3d
;Create model to contain surface
```

```
omodel    = OBJ_NEW('IDLgrModel')
;create vector field
n=6
range=1.0
fac=0.05
step=range/(n-1)
x=step*findgen(n)
y=x
z=x
vx=fltarr(n,n,n)
vy=vx
vz=vx
v=vx
x1=vx
y1=vx
z1=vx
m=n-1
for i=0,m do begin
 for j=0,m do begin
  for k=0,m do begin
    vx(i,j,k)=fx(x(i),y(j),z(k))
    vy(i,j,k)=fy(x(i),y(j),z(k))
    vz(i,j,k)=fz(x(i),y(j),z(k))
  endfor
 endfor
endfor
for i=0,m do begin
 for j=0,m do begin
  for k=0,m do begin
    x1(i,j,k)=x(i)+fac*vx(i,j,k)
    y1(i,j,k)=y(j)+fac*vy(i,j,k)
    z1(i,j,k)=z(k)+fac*vz(i,j,k)
  endfor
 endfor
endfor
; normalize field
mnx=min([min(x),min(x1)])
mxx=max([max(x),max(x1)])
mny=min([min(y),min(y1)])
mxy=max([max(y),max(y1)])
mnz=min([min(z),min(z1)])
mxz=max([max(z),max(z1)])
max1=max([mxx,mxy,mxz])
min1=min([mnx,mny,mnz])
x1=-1.0+2.0*(x1-min1)/(max1-min1)
y1=-1.0+2.0*(y1-min1)/(max1-min1)
z1=-1.0+2.0*(z1-min1)/(max1-min1)
x=-1.0+2.0*(x-min1)/(max1-min1)
```

```
y=-1.0+2.0*(y-min1)/(max1-min1)
z=-1.0+2.0*(z-min1)/(max1-min1)
; create field vectors
for i=0,m do begin
 for j=0,m do begin
  for k=0,m do begin
    xs=[x1(i,j,k),x(i)]
    ys=[y1(i,j,k),y(j)]
    zs=[z1(i,j,k),z(k)]
    opolyline = OBJ_NEW('IDLgrPolyline', xs,ys,zs, $
                color=[255,0,0],thick=1,shading=0)
    omodel  -> ADD, opolyline
    mesh_obj,4,verts,conn,Replicate(0.01 ,6,6)
    T3d,/Reset
    T3d, Translate=[x1(i,j,k),y1(i,j,k),z1(i,j,k)]
    verts=Vert_T3d(verts)
    oSphere=OBJ_NEW('IDLgrpolygon',
verts,poly=conn,COLOR=[255,0,0],style=0)
    omodel  -> ADD, oSphere
  endfor
 endfor
endfor
;create box
opolyline = OBJ_NEW('IDLgrPolyline',[-1.0,1.0],[-1.0,-1.0],[-1.0,-1.0],
$
                color=[0,255,0],thick=1,shading=0)
omodel  -> ADD, opolyline
opolyline = OBJ_NEW('IDLgrPolyline',[-1.0,-1.0],[-1.0,-1.0],[-1.0,1.0],
$
                color=[0,255,0],thick=1,shading=0)
omodel  -> ADD, opolyline
opolyline = OBJ_NEW('IDLgrPolyline', [-1.0,1.0],[-1.0,-1.0],[1.0,1.0],
$
                color=[0,255,0],thick=1,shading=0)
omodel  -> ADD, opolyline
opolyline = OBJ_NEW('IDLgrPolyline', [1.0,1.0],[-1.0,-1.0],[-1.0,1.0],
$
                color=[0,255,0],thick=1,shading=0)
omodel  -> ADD, opolyline
opolyline = OBJ_NEW('IDLgrPolyline', [1.0,1.0],[-1.0,1.0],[-1.0,-1.0],
$
                color=[0,255,0],thick=1,shading=0)
omodel  -> ADD, opolyline
opolyline = OBJ_NEW('IDLgrPolyline', [1.0,1.0],[1.0,1.0],[-1.0,1.0], $
                color=[0,255,0],thick=1,shading=0)
omodel  -> ADD, opolyline
opolyline = OBJ_NEW('IDLgrPolyline', [-1.0,-1.0],[-1.0,1.0],[1.0,1.0],
$
```

```
                color=[0,255,0],thick=1,shading=0)
omodel  -> ADD, opolyline
opolyline = OBJ_NEW('IDLgrPolyline',[-1.0,-1.0],[-1.0,1.0],[-1.0,-1.0],
$
                color=[0,255,0],thick=1,shading=0)
omodel  -> ADD, opolyline
opolyline = OBJ_NEW('IDLgrPolyline', [-1.0,-1.0],[1.0,1.0],[-1.0,1.0],
$
                color=[0,255,0],thick=1,shading=0)
omodel  -> ADD, opolyline
opolyline = OBJ_NEW('IDLgrPolyline', [-1.0,1.0],[1.0,1.0],[1.0,1.0], $
                color=[0,255,0],thick=1,shading=0)
omodel  -> ADD, opolyline
opolyline = OBJ_NEW('IDLgrPolyline', [1.0,1.0],[-1.0,1.0],[1.0,1.0], $
                color=[0,255,0],thick=1,shading=0)
omodel  -> ADD, opolyline
opolyline = OBJ_NEW('IDLgrPolyline', [-1.0,1.0],[1.0,1.0],[-1.0,-1.0],
$
                color=[0,255,0],thick=1,shading=0)
omodel  -> ADD, opolyline

;Create a fixed light
ofixedlight = OBJ_NEW('IDLgrLight', TYPE = 1, $
   LOCATION = [-1,-1,1], COLOR = [128,128,128])
omodel -> ADD, ofixedlight
;Create another fixed light
ofixedlight1 = OBJ_NEW('IDLgrLight', TYPE = 1, $
   LOCATION = [-1,1,1], COLOR = [128,128,128])
omodel -> ADD, ofixedlight1
;Create movable light that goes with surface
olight = OBJ_NEW('IDLgrLight', TYPE = 2, LOCATION = [-1,-1,-1])

omodel -> ADD, olight
xobjview,omodel
end
```