
Subject: Plotting spherical slice surfaces

Posted by [Mrunmayee](#) on Fri, 30 Apr 2010 07:27:16 GMT

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I want to plot a region between 2 spheres constrained by constant longitudes and constant latitudes. That is, if we want to plot a box in Euclidean space, we would plot 6 planes with $x_{\min}$, $x_{\max}$ and so on constant. What I want to plot is region between given $r_{\min}$ and $r_{\max}$, $\text{longitude}_{\min}$ (etamin) and $\text{longitude}_{\max}$ (etamax), $\text{latitude}_{\min}$ (lambdamin) and $\text{latitude}_{\max}$ (lambdamax). A constant longitude only surface would be just a plane perpendicular to xy-plane and its projection in xy-plane would be just a line. Here is what I have done for this one surface particular:

```
n = 100
```

```
rmin = 461.78 & rminArr = REPLICATE(rmin, n)
```

```
rmax = 1061.38 & rmaxArr = REPLICATE(rmax, n)
```

```
lambdamin = -50.*!pi/180. & lambdaminArr = REPLICATE(lambdamin, n)
```

```
lambdamax = 50. *!pi/180.& lambdamaxArr = REPLICATE(lambdamax, n)
```

```
etamin = -34. *!pi/180. & etaminArr = REPLICATE(etamin, n)
```

```
etamax = 35. *!pi/180. & etamaxArr = REPLICATE(etamax, n)
```

```
dr = rmax - rmin
```

```
dlambda = lambdamax - lambdamin
```

```
deta = etamax - etamin
```

```
r = FINDGEN(n)/(n-1) * dr + rmin
```

```
lambda = FINDGEN(n)/(n-1) * dlambda + lambdamin
```

```
eta = FINDGEN(n)/(n-1) * deta + etamin
```

```
z = r # sin(lambda) ; Conversion equations for latitude-longitude
```

```
x = x = r * cos(lambda)#cos(etaminArr)
```

```
y = r * cos(lambda) # sin(etaminArr)
```

```
surface,z,x,y,charsize=3
```

Its projection in xy-plane IS a line. If I use

```
fsc_surface,z,x,y
```

I do find it to be planar surface, but it's not what it should look like. I mean, I don't get what it's plotting.

Any help is appreciated. For the whole problem of plotting this region between 2 spheres.

Thanks.
