Subject: Transverse cylidrical map projection.
Posted by James Kuyper on Thu, 23 Mar 2000 08:00:00 GMT
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I want to plot data using a transverse cylindrical map projection. An equal-area one would be best, but equidistant or mercator would be almost as good, just so as long as it's transverse version of one of the cylindrical projections. MAP_SET accepts a tilt angle, which doesn't do what I want for most of the cylindrical projections. The user's guide contains an example command:

```
map_set,0,0,45,londel=20,latdel=20,/grid,$
/continent,/cyl,title='Oblique Cylindrical Equidistant'
```

which is shown in the book as producing a map with the projection axis tilted by 45 degrees: the lines of constant latitude and longitude are curved. When I try it, I get a map tilted by 45 degrees, which is a very different thing: The lines of constant latitude and longitude are strait, tilted by 45 degrees. This suggests that the book was printed using a different (hopefully later) version of IDL than I'm using. I saw the problem first in version 5.0.3, but I've recently discovered where they've hidden version 5.2 on our machine, and I still see the same results using it.

Luckily, I've found that the transverse mercator projection does implement the tilt properly. However, in large maps it often considers one or more of my limit points unmappable, for reasons that escape me. For example,

```
map_set,-15.7970,-90.4190,260.1820, limit=[78.548,-31.494, $
-27.66,-64.441, -64.066,103.55, -0.792,-114.296],$
/continents,/grid,/label,/isotropic,/transverse_mercator
```

Produces the complaints:

```
% MAP_SET_LIMITS: Unmappable limit point:     -31.4940      78.5480
% MAP_SET_LIMITS: Unmappable limit point:      103.550     -64.0660
```

The only points that should be unmappable in a mercator projection are points near the projection axis, and of the four points I gave, those two are the ones farthest from the axis.

If you use /lambert instead of /transverse_mercator, you'll get a feel for the kind of plot I want. /stereo and /azimuthal also work, each with their own distortion properties. However, I want a cylindrical projection, not an azimuthal one - the projection properties aren't quite what I want.

Can anyone suggest a solution?