Subject: Re: map_set, !map, !x, !p.position (and behind this curtain, !x.*)
Posted by MarioIncandenza on Fri, 24 Mar 2006 00:38:09 GMT
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Matt,

It's done, at least a good throw at it:

ftp://ftp.nrlmry.navy.mil/pub/receive/hyer/map_set_hack/

NOTE1: All of you waiting to do direct graphics with the ISIN
projection, keep waiting. This implementation doesn't do GCTP
projections. At least I expect it doesn't, I haven't tested it--
honestly, it just might.

NOTE2: You can set the LIMITs in MAP_PROJ_INIT or in MAP_SET_HACK. If
you set it in both, the LIMITs given to MAP_SET_HACK will be used.

I did test it with a few different projections, and also tested the
SCALE and ISO keywords, verifying that the visual map produced is
identical to the results from MAP_SET. This means that laying data out
on the map will work, I can't say what else will and won't work. I call
it a hack because line-by-line mostly I just deleted about 100 lines
from MAP_SET.PRO. The principal complication relates to this:

```
IDL> lam=map_proj_init('Lambert Azimuthal',$
IDL>  center_longitude=-100,center_latitude=40,limit=[30,-140,60,- 80])
IDL> print,lam.uv_box,lam.a,lam.e2
      -3708024.9      -1110538.0       1913671.3       2763653.9
       6370997.0      0.00000000
IDL> map_set,40,-100,/lambert,limit=[30,-140,60,-80]
IDL> print,!map.uv_box,!map.a,!map.e2
     -0.58201641     -0.17431149      0.30037236      0.43378672
       1.0000000      0.00000000
```

What's happening here is that MAP_PROJ_INIT and MAP_SET work
differently. MAP_PROJ_INIT always uses an ellipsoid with dimensions in
meters, and MAP_SET normalizes all dimensions to the radius of the
standard sphere, unless forced. Of the non-GCTP projections, only UTM
and Lambert Conic can use a specified ellipsoid, those projections work
the same with MAP_SET and MAP_PROJ_INIT.

This hack does what I needed it to do, and I learned a lot about IDL's
map geometry doing it. If it cracks for your application, post to the
group, the only thing I think cannot be fixed is support for GCTP
projections.

I will never use object graphics-- NEVER!

--Edward H.