Subject: map_set and limit question
Posted by wgallery on Fri, 12 Oct 2007 18:28:12 GMT
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I am plotting some satellite data with a Stereographic projection. To create a projection centered on the N Pole and extending from 30 deg N to 90 deg N, I use:

map_set,/stereographic, 90.0, 0.0, limit = [30, -90, 30.0, 180., 30.0, 90.0, 30, 0],/isotropic

Now I want to center and zoom in on a feature in the image: i.e., I want to change the projection so that it is centered on a feature centered at lon=clon, lat=clat and extending 45 deg in 'latitude' from the center. The question is: how do I construct the keyword limit for this situation?

My approach is to perform a coordinate transformation to move the center of the feature to the N Pole and perform the inverse of this transformation on the value of limit= [45, -90, 45.0, 180., 45.0, 90.0, 45, 0] to get the new value of limit to use in:

map_set,/stereographic, cat, clon, limit = new_limit,/isotropic

The coordinate transformation would consist of a rotation about the Z axis by -clon followed by a rotation about the Y axis by 90-clat. This puts the point [clat, clon] at the N Pole.

However, the details of the coordinate transformation escape me. I know it is a simple matrix multiplication but am stumped on the values.

Does anyone know offhand the equations for the coordinate transformation, or have a better approach to the problem?

Cheers

Bill Gallery