Subject: Re: satellite field of view pole projection
Posted by penteado on Thu, 02 Jun 2016 18:42:58 GMT
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Hello,

If I understand correctly your problem, since you have the corner points, a solution might be to use pp_drawsphericalpoly from my library (http://www.ppenteado.net/idl/pp_lib/doc/).

Se the 5th example plot in http://www.ppenteado.net/idl/pp_lib/doc/pp_drawsphericalpoly .html, it is the one with polygons spanning the pole.

Paulo

On Thursday, June 2, 2016 at 7:22:27 AM UTC-7, audrey.sch...@gmail.com wrote:
> Hi everyone!
>
> I thought I had a rather simple (and common) problem, but I just can't seem to find the hang of how to solve this:
>
> I have a satellite that is flying around the Moon in a circular orbit with fixed altitude. The instrument on board the satellite is nadir pointing, has a fixed field-of-view, the surface projection of which is 150 x 25 km^2 (you can imagine the instrument being fixed in space and the Moon turning beneath the instrument). I now have a dataset of measured counts and associated longitude x latitude pair (either as boresight point, or as an array of four corner points).
>
> What I would like to do is map my counts onto the footprint of my rectangular field-of-view (around the boresight, or spanning the four corner points).
>
> This works well for the equatorial region: I just create a 360 x 180 float array, and for each measurement distribute the counts from the min(corners_longitudes), min(corners_latitudes) to the max(corners_longitudes), max(corners_latitudes).
>
> At the poles this obviously does not work, because at the poles a rectangular field-of-view projection has non-consecutive longitude, latitude values (they kind of jump around in value if part of the field-of-view is beyond the pole). I assume I have to do some triangulation, and fill all triangles within the triangles associated with the corner points. But I just can't seem to figure out how to do this.
>
> Does anyone have a solution to this problem?
>
> best,
> Audrey