Subject: Re: Que: Spherical Projections
Posted by james on Thu, 07 May 1992 19:05:34 GMT
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In article <1992May3.173547.9208@zia.aoc.nrao.edu> avourlid@nrao.edu writes:
> Hi,
> I'm writing a program in PV-wave in which I want to be able to see
> different views of a sunspot. For a flat image this is easy using EYE and
> POLYWARP. However,I want to take into account the sphericity of the Sun as
> well, but I cannot see any easy way to
> do the warping using this information. Does anybody have any experience
> with this kind of problems? I'll appreciate any suggestions
> Thanks
> Angelos Vourlidas
> avourlid@nrao.edu

Sorry for the delay, our news feed is on spring break so I'm using an
alternate access.

```
;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;; ;;;
; Spherical inverse mapping examples in PV-WAVE 3.10 and 4.00 ;
; in response to Article 388 in comp.lang.idl-pvwave          ;
;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;; ;;;
Pro SunSpots

 ;
 ; Load "sun_spots" image which is of dimension
 ;     [sunspots_width, sunspots_height]
 ;
 sunspots_width = 720  & sunspots_height = 360
 sun_spots = Bytarr(sunspots_width, sunspots_height)
 Openr, 1, 'sun_spots.dat'
 Readu, 1, sun_spots
 Close, 1

 ;
 ; Initialize common information used by both examples
 ;
 nframes = 72  ; # of frames in full-orbit around sun
 anim = Bytarr(256, 256, nframes) ; array of frames
 rotangle = 360. / nframes  ; angle of rotation between frames
 Window, 0, Xsize = 256, Ysize = 256 ; open up window

  ;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;; ;;;;;;;;;;;;
 ;
 ; Example of spherical inverse mapping using PV-WAVE 4.0 >RENDER<
 ; (ray-traced).  This method is MUCH faster for LARGE decals.
 ;
```

```
  T3d, /Reset, Rot=[-90.,0.,0.]
  T3d,         Rot=[0.,180.,0.]
  s = Sphere(Decal = sun_spots, Kamb = Findgen(256) / 255.,$
           Kdiff = fltarr(256), Transform = !P.t)
  For frame = 0, nframes - 1 Do Begin
    T3d, /Reset, Rot=[0., frame * rotangle, 0.]
    anim(*, *, frame) = Render(s, Transform=!P.t, X=256, Y=256)
    Tv, anim(*, *, frame)
  Endfor
  Movie, Order = 0, anim

  ..................................................................... .............
  ;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;; ;;;;;;;;;;;;
  ;
  ; Example of spherical inverse mapping using PV-WAVE 3.10, 4.00 >ARL<
  ; This method is faster for SMALL decals.
  ;
  Poly_Sphere, 1.0, sunspots_width, sunspots_height,$
             vertex_list, polygon_list
  For frame = 0, nframes - 1 Do Begin
    Center_View, Xr = [-1.0, 1.0], Yr = [-1.0, 1.0], Zr = [-1.0, 1.0], $
               Ax = -90., Ay = 0., Az = frame * rotangle,$
               winx = 256, winy = 256
    anim(* ,* ,frame) = Polyshade(vertex_list, polygon_list, $
                                Shades = sun_spots, /T3d)
    Tv, anim(*, *, frame)
  Endfor
  Movie, Order = 0, anim
```

End

Unless you, or someone at your site, is a beta test site you will
have to use the ARL method.

I hope this has answered your question.

Thanks
James K. Phillips

I work at PVI but I am not an official spokesperson.
