I've been trying to use the ray-tracing procedure RENDER in PVI's Command
Language version 4.0 without much success. I'm finding it very difficult to
fully understand how RENDER is setting up its coordinate system.

Up to now, I've been using Polyshade to do some isosurface graphics, using
the Center_view procedure to set up the coordinate system. The default coord
system is with the z axis +ve out of the display. The eye point is along the
+ve z axis. If you use the T3D procedure to rotate the coord system, the eye
point stays in its original position.

With RENDER however, although it uses !p.t, the system tranformation matrix,
it sets up a different view on each call, changing the eye viewpoint and the
viewing plane. If you set a constant viewpt using the View keyword, the
transformation matrix changes the eye point as well as the coordinate system.
This is unlike the polyshade procedure and means that you end up looking at the
same bit of the object if you never change the viewpoint.

What I am trying to do is to set up a coord system for a polar stereographic
map projection which has the ranges x=[-2.0,2.0], y=[-2.0,2.0],z=[0.0,1.0]
add a background generated by polyshade, then add images generated by
render. Because of the way the coord. system is treated by both polyshade and
render it is very difficult to achieve this.

Another complication is that render seems to ignore the zoom parameter on
centre_view so that it is impossible(?) to zoom into a part of the display.
Even if you can, I guess it will not work in the same way as polyshade using
the zoom keyword on the center_view procedure.

I hope this is all understandable. If someone can help me to understand how
to achieve identical coordinate systems whether I use polyshade on a set of
polygons or render I would be most grateful.

Glenn Carver
Centre for Atmospheric Science
Chemistry Department
Cambridge University, UK
Email: glenn@atm.ch.cam.ac.uk or gdc11@cus.cam.ac.uk