Subject: Re: plotting vectors in 3D
Posted by davidf on Mon, 06 Nov 2000 08:00:00 GMT
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M Carmen Gonzalez (mcgonzal@uv.es) writes:

> am new in IDL programming and I'm still a bit lost, so may be some of you
> can help me...
>
> I am trying to plot the measured wind speed (2 components) by a balloon in
> vertical ascension. At each point of the trajectory i want to plot a vector
> indicating the wind direction at that point.
>
> Does someone know how could I do it?

Oh, oh. I think there are probably a number of us
would know *how* to do this. The problem comes about
in trying to convey that information to a novice
IDL programmer in 10,000 words or less. :-)

But here is a general outline. I don't think
this is a particularly difficult problem for
an experienced IDL programmer. Perhaps a couple of
days work. But for an inexperienced programmer, it
could be an excellent way to pass the darks days
of winter. :-)

First, I would do this in the object graphics
system, because at the end of the day, you will
want to rotate this plot to get the maximum
amount of information out of it. It is unlikely
to be saliently "visible" otherwise.

I would probably create some kind of an "arrow"
object for myself, which would be subclassed on
a model object for ease of rotation and scaling.
The arrow would probably consist of a cylindrical
"shaft" and some kind of an arrow "head", both
constructed from filled polygon objects that I could
shade them with one or more light objects, to give the
scene some depth.

You could look at a program like FSC_SURFCE for
information on how to create and rotate a 3D
coordinate system in object graphics, but
placing the objects in the 3D environment (if you
get this far) will be trivial.

Hope this gives you some ideas. This is, unfortunately,
a fairly advanced "beginner" project. Good luck! :-)

Cheers,

David

P.S. Another approach, which I don't think is
as likely to give good results, but which might
be faster to implement, would be to do this in
direct graphics. Set up a 3D coordinate system
with something like SCALE3D, then modify the
ARROW procedure in the lib subdirectory to
work in 3D space. (If you can live with "flat"
arrows, then this may be no more complicated than
adding a Z value to the PLOTS command that draws
the arrows.)

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