
Subject: Re: Plotting streamlines in 3D

Posted by [David Fanning](#) on Tue, 25 Jan 2005 15:12:58 GMT

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mark.t.douglas@gmail.com writes:

> I can plot streamlines (well, magnetic field lines, but anyway) in 2D
> easily enough but getting them to plot in 3D is a task that is filling
> me with a terrible rage - I just can't get it working! plots() doesn't
> seem suited to the task and I really can't figure out how streamline()
> or particle_trace() or anything like that works. I tried googling for
> help but all I got were 404s because it seems the last time anyone
> tried plotting streamlines in 3d and getting stuck doing so was in
> 2001.
>
> Anyone able to help? The field is analytic so I can get the field at
> any point easily enough (field(x,y,z) returns a three-element vector)
> and I can trace the field lines starting from any point too
> (trace(x,y,z,ds) returns a 3xN array consisting of the x,y and z coords
> of the nth point along it, with a stepsize ds) but plotting them in 3D
> is driving me mad!

I find the documentation for PARTICLE_TRACE and STREAMLINE a bit dense, too. But I presume you know these two routines work together (PARTICLE_TRACE preparing input for STREAMLINE), and that the result needs to be rendered (probably, or I can understand your frustration) in an object graphics program.

Is this the latter what you are frustrated with?

A few more details of what you have actually tried would help. :-)

Cheers,

David

--

David Fanning, Ph.D.

Fanning Software Consulting, Inc.

Coyote's Guide to IDL Programming: <http://www.dfanning.com/>

Subject: Re: Plotting streamlines in 3D

Posted by [Mark Douglas](#) on Tue, 25 Jan 2005 19:25:40 GMT

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David Fanning wrote:

> I find the documentation for PARTICLE_TRACE and STREAMLINE
> a bit dense, too. But I presume you know these two routines
> work together (PARTICLE_TRACE preparing input for STREAMLINE),
> and that the result needs to be rendered (probably, or I can
> understand your frustration) in an object graphics program.
>
> Is this the latter what you are frustrated with?
>
> A few more details of what you have actually tried would
> help. :-)
>
> Cheers,
>
> David
>

I knew you had to feed streamline() with data calculated from
particle_trace(), didn't know you had to render it though, it's not as
if I was on an SGi or anything...! In the end I discovered plot_3dbox(),
which together with plots() met my needs.

How would I go about rendering it though? Don't want to admit defeat
just yet!

Thanks,

Mark

Subject: Re: Plotting streamlines in 3D

Posted by [David Fanning](#) on Tue, 25 Jan 2005 20:08:48 GMT

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Mark Douglas writes:

> I knew you had to feed streamline() with data calculated from
> particle_trace(), didn't know you had to render it though, it's not as
> if I was on an SGi or anything...! In the end I discovered plot_3dbox(),
> which together with plots() met my needs.
>
> How would I go about rendering it though? Don't want to admit defeat
> just yet!

Uh, well, object graphics can't really be explained
in a couple of paragraphs, really. Maybe a short answer
is you would use the output from Streamline to create
an IDLgrPolygon object, and you could try passing that
to XObjView. That might get you started in the right

direction.

For more info, I'd get ahold of Ronn Kling's book,
Power Graphics with IDL. I don't think you can learn
object graphics without that book. :-)

Cheers,

David

--

David Fanning, Ph.D.

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Subject: Re: Plotting streamlines in 3D

Posted by [Mark Douglas](#) on Tue, 25 Jan 2005 21:59:29 GMT

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David Fanning wrote:

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> in a couple of paragraphs, really. Maybe a short answer
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>
> For more info, I'd get ahold of Ronn Kling's book,
> Power Graphics with IDL. I don't think you can learn
> object graphics without that book. :-)
>
> Cheers,
>
> David

whoa

I think I'll stick with `plot_3dbox()`, I don't think having ribbons is
worth the extra effort!

Thanks for the reply though :)

Mark
