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Subject: Re: Particle\_Trace question ?

Posted by [Michael Galloy](#) on Tue, 18 Mar 2008 23:23:09 GMT

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On Mar 18, 4:56 pm, millward.geo...@gmail.com wrote:

> Hi there,  
>  
> I am trying to use particle\_trace to create streamlines from a vector  
> field - but I'm having quite alot of trouble  
> understanding the documentation.  
>  
> I have a velocity field which is a longitude,latitude array of  
> Southward and Eastward velocities.  
> My arrays are 20 longitudes by 91 latitudes. So my 2 arrays are:  
>  
> V\_south(20,91) and V\_east(20,91)  
>  
> I now want to feed these into Particle\_trace.  
>  
> The syntax for Particle\_trace requires a single array (which they call  
> Data) of  
> size Data[2,dx,dy]  
>  
> I'm assuming that dx and dy are the indexes for longitude and latitude  
> and the first dimension (2)  
> is for the 2 components of the field, so:  
>  
> data(0,lon,lat) = V\_east(lon,lat)  
> data(1,lon,lat) = 0.0 - V\_south(lon,lat)  
>  
> Nowhere in the documentation does it define the directions - is dx  
> Eastwards - is dy Northwards? Very confusing !!  
>  
> And the seed points - are these longitude, latitude points or  
> something ? Again, no real explanation in the documentation.  
>  
> ....or have I got it completely wrong ?  
>  
> Any help with this very much appreciated  
>  
> Cheers,  
>  
> George.

Here's an example of using PARTICLE\_TRACE:

```
; defines u, v, x, and y  
restore, filepath('globalwinds.dat', subdir=['examples','data'])
```

```

data = fltarr(2, 128, 64)
data[0, *, *] = u
data[1, *, *] = v

; define starting points
seeds = [[32, 32], [64, 32], [96, 32]]

particle_trace, data, seeds, verts, conn, max_iterations=30

; plot the underlying vector field
velovect, u, v, x, y

; overplot the streamlines
i = 0
sz = size(verts, /structure)
while (i lt sz.dimensions[1]) do begin
  nverts = conn[i]
  plots, x[verts[0, conn[i+1:i+nverts]]], y[verts[1, conn[i+1:i
+nverts]]], $
  color='0000FF'x, thick=2, linestyle=2
  i += nverts + 1
endwhile

```

Mike

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[www.michaelgalloy.com](http://www.michaelgalloy.com)

Tech-X Corporation

Software Developer II

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