Subject: Re: Particle_Trace question ?
Posted by millward.george on Wed, 19 Mar 2008 01:32:11 GMT
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On Mar 18, 5:23 pm, "mgal...@gmail.com" <mgal...@gmail.com> wrote:
> 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
>  --www.michaelgalloy.com
>  Tech-X Corporation
>  Software Developer II
```

Mike

Aha - so the seeds are just integer positions within the 2D array -
got it - thanks !!

Does it matter what the directions of U and V are - maybe not - hmm ?

Thanks for the demo code - that example needs to make it into the
reference guide.

Cheers,

George.