Subject: Re: Interpolation of velocity Grid
Posted by Kenneth P. Bowman on Wed, 21 Nov 2007 01:12:02 GMT

In article
<68af68f3-a832-42a1-b0e6-0b7278b2ba53@e25g2000prg.googlegroups.com>,
 byrne.david@gmail.com wrote:

> Hi Guys,
>
> I have a quick question about an IDL problem i'm having and I can't
> seem to work out a clever way of achieving what I want to do. I was
> wondering if you had any ideas for me.
>
> My problem is that I need to interpolate an irregular velocity field
> grid to a regular one and for the life of me i can't work out how to
> do it.
>
> Ok for example I have two arrays, in one array I have all the global
> coordinates of the bases of my vectors and in the other all the global
> coordinates tips of my vectors with the origin reference at (0,0).
>
> So lets say base=(2, 30000) array and tip=(2,30000)
>
> Now I want to put these vectors onto a regular grid and lets say the
> maximum global coordinate is 3000.
>
> So I need to interpolate these vectors onto a (3000,3000) Grid with
> the velocities defined at each point. I guess some kind of
> interpolation to fill in flow field between the sampled data is needed
> but i'm not sure of how to achieve this.

There are many ways to approach this problem. The most straightforward
is probably to use the "base" and "tip" values to compute the x- and
y-components of the vectors. Then interpolate the two components
separately.

This can be done with TRIANGULATE and TRIGRID. An example of
interpolating an irregular grid to a regular grid can be found here

   http://idl.tamu.edu/Book.html

(see the sample chapter), but you'll want to buy the whole book. :-)

Another possible approach is optimum interpolation, but that is considerably
more complicated.

Ken Bowman