Subject: Re: Re-gridding Problem
Posted by Kenneth P. Bowman on Wed, 30 Jan 2008 16:03:48 GMT
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In article <MPG.22093dcc1a580def9896aa@news.frii.com>,
David Fanning <news@dfanning.com> wrote:

> Folks,
>
> I've heard the astro guys talk about this from time to time, so I
> thought I would ask.
>
> I have some output from the climate modeling folks. I need this
> data on a regular grid. Unfortunately, the data is *slightly*
> regular. Here is one of my cases (I have several all like this,
> but different).
>
> The data is on a regular 1-deg grid in the longitudinal direction.
> It is on a regular 1 deg grid in the latitudinal direction,
> EXCEPT between -30 and + 30 degrees, where it is on a gradually
> decreasing grid to 1/3 of a degree at the equator.
>
> I would like a grid that is everywhere sampled on a 1 degree grid.
> So, my idea is to superimpose a 1-deg grid over my data and resample.
> It is going to get messy. :-(
>
> My question is this. Does anyone have any code to share that can
> oversample like this?

(I think you mean you want to undersample, correct? That is, you want a
lower resolution grid than the original data.)

This is pretty easy with INTERPOLATE.

Assuming that your data is 2-D (x = longitude and y = latitude), create
the grids that you want to interpolate to

```
nx = 360
ny = 181

x  = FINDGEN(nx)
y  = -90.0 + FINDGEN(ny)
```

Compute the "interpolation coordinates" from the original grid

```
j  = VALUE_LOCATE(y_original, y)
yj = j + (y - y_original[j])/(y_original[j+1] - y_original[j])
```

Since the input and output grids are the same in the x-direction, you don't need to do anything with x. Expand x and yi into 2-D arrays

xx = REBIN(x, nx, ny, /SAMPLE)
yy = REBIN(REFORM(yi, 1, ny), nx, ny, /SAMPLE)

Then interpolate

new = INTERPOLATE(original, xx, yy)

Ken
