
Subject: Re: Re-gridding Problem

Posted by [Brian Larsen](#) on Tue, 29 Jan 2008 20:50:38 GMT

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- > 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. :-(

David,

while not exactly the same, I have done things like this and just used `interpolate()` (or `interpol()`) on the places where you want the points. You certainly know how to do this, is this not what you want to do?

Cheers,

Brian

Brian Larsen
Boston University
Center for Space Physics

Subject: Re: Re-gridding Problem

Posted by [David Fanning](#) on Tue, 29 Jan 2008 21:50:43 GMT

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Brian Larsen writes:

- > while not exactly the same, I have done things like this and just used
- > `interpolate()` (or `interpol()`) on the places where you want the
- > points. You certainly know how to do this, is this not what you want
- > to do?

Like most people who post to this group, I'm not sure what I want to do. That's my biggest problem. :-)

I guess I'm trying not to change the data too early in the process. This is just the first step. Mucking too much with

the data here might have consequences at the end of the process. Humm. Have to think...

Cheers,

David

--

David Fanning, Ph.D.
Fanning Software Consulting, Inc.
Coyote's Guide to IDL Programming (www.dfanning.com)
Sepore ma de ni thui. ("Perhaps thou speakest truth.")

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

Subject: Re: Re-gridding Problem

Posted by [David Fanning](#) on Wed, 30 Jan 2008 22:57:48 GMT

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Kenneth P. Bowman writes:

```
> (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.
```

Thanks, Ken. I came up with a solution involving INTERPOL, mostly because I couldn't figure out the algorithm for INTERPOLATE. I am **really** grateful to have this example. I'm going to put it on my web page so I can find it again. :-)

Cheers,

David

--

David Fanning, Ph.D.

