
Subject: Re: GRIDDATA woes

Posted by [David Fanning](#) on Wed, 05 Mar 2008 14:57:59 GMT

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Kenneth P. Bowman writes:

```
> VALUE_LOCATE finds the index of the point less than or equal to the search
> value. You are trying to interpolate exactly to the last point. This
> code correctly computes the index of that point to be 7, but there
> is no point 8 to use for the interpolation. This can be solved
> like this
>
> IDL> lat = [-87.5, 50, 25, 0, 30, 45, 64, 87.5]
> IDL> y = Scale_Vector(findgen(7), -87.5, 87.499)  <-----
> IDL> j = Value_Locate(lat, y)
> IDL> yj = j + (y - lat[j])/(lat[j+1] - lat[j])
> IDL> PRINT, yj
>    0.00000    0.212120    0.424240    0.636360    3.97220
>    5.70171    6.99996
>
> Unfortunately, INTERPOLATE does not extrapolate when you are outside
> the domain of the function.
```

I'm going to agree with Ben, and keep VALUE_LOCATE out of it. But, I've also used Paolo's suggestion. Here is code that I think works well for me, and allows me to create any sized grid I want.

In the code, lat is a 48-element vector that is irregularly spaced, lon is a 96-element vector, that is regularly spaced, except for the two end members, and sit is the 2D array I wish to resample. In this code, I am trying to resample to a 360x180 array, to make it consistent with other arrays I have available to me.

```
nx = 360
ny = 180
slon = Scale_Vector(Findgen(nx), 0.5, 359.5)
slat = Scale_Vector(Findgen(ny), Min(lat), Max(lat))
x = Interpol(Findgen(N_Elements(lon)), lon, slon)
y = Interpol(Findgen(N_Elements(lat)), lat, slat)
xx = Rebin(x, nx, ny, /SAMPLE)
yy = Rebin(Reform(y, 1, ny), nx, ny)

resampledArray = Interpolate(sit, xx, yy)
```

Even in this "worst case" scenario, I seem to get reasonably good results. I *really* like that INTERPOL way of getting fractional

indices!

Cheers,

David

--

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Coyote's Guide to IDL Programming: <http://www.dfanning.com/>

Sepore ma de ni thui. ("Perhaps thou speakest truth.")
