
Subject: Map image with a sparse array

Posted by [whdaffer](#) on Fri, 21 Jan 2000 08:00:00 GMT

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Hi;

I have the following problem. I have an array of geographically colocated data (0.5 by 0.5 degree grid) that is the result of averaging all 253 swaths of one cycle of Topex data into this grid. Topex data has a small (3 or maybe 10km) swath, so the majority of the grid location (65%) are 'bad' in the sense that those grid elements contain no averaged data.

I want to display this by mapping it using `map_set/map_image`. The old method simply 'tv'd the image to the screen and then finessed applying the continents/grid lines to the image. A bit of a boondoggle, and not very upgradeable.

The problem is that there seems to be no way to tell `map_image` (and `map_patch` too) that certain data (the 'bad' data value) should be excluded from whatever averaging/bilinear-interpolation/nearest-neighbor-choosing method is used and the 'mapped' image has places that are clearly corrupted by the presence of the bad data. The problem is ameliorated by use nearest neighbor rather than bilinear interpolation (i.e. `bilinear=0`) and I am setting `compress=0`, so that the inverse transformation is done on each pixel. Also, I've started out with a window set to the size of the input data array and with `map_set,position=[0.,0,1,1]` so that the mapping coordinate system occupies the entire window. These remedies I hit upon thinking that they would minimize the damage, and they have done that, but when I compare my results with the older, more 'pristine' but vastly less portable, upgradeable, maintainable method, there are big differences.

The 'missing' keyword just sets elements outside the range input via the 'min' and 'max' keywords and those outside of the mapping coordinates to the bad value, it doesn't allow one to exclude data from the averaging/interpolation/choosing method.

Will I have to hack `map_image`? Or go back to the old way?

William

Sent via Deja.com <http://www.deja.com/>
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Subject: Re: Map image with a sparse array
Posted by [William Daffer](#) on Thu, 27 Jan 2000 08:00:00 GMT
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"Liam E. Gumley" <Liam.Gumley@ssec.wisc.edu> writes:

> whdaffer@my-deja.com wrote:
>
>> Can anyone see what I'm doing wrong?
>>
>> When I tv the mapped image and compare it to the unmapped image, it's
>> clear that the mapped image has included some 'bad' data in the
>> calculations of points within the grid.
>>
>> To be fair, this possibility is not explicitly excluded in the help
>> file. If I'm reading it correctly, all it says is that output grid
>> values which are within the valid mapping limits but which exceed input
>> maxima will be set to the 'bad data' value, not that the input 'bad
>> data' value will be excluded from caluclations.
>>
>> The effect is not large, but it isn't small either. The person I'm
>> doing the work for noticed it right off.
>>
>> By the way, I did try your method first, (bytsc1, then map_image) and
>> got similar results, but thought that I should make the bytsc1 be the
>> last step, since it reduces the 'color' resolution from 360 values to
>> about 200. I'll go back and try your method again. Perhaps there's some
>> magic that I'm not seeing.
>
> William,
>
> I pulled that section of code from a procedure that projects a 720x360
> global grid with missing data onto various map projections. I cannot see any
> hint that the missing data corrupted the resulting image:
> ftp://origin.ssec.wisc.edu/pub/gumley/IDL/grid_project002.gi f
>
> Cheers,
> Liam.
>

Liam;

It looks like your array is considerably more filled-out than mine.

Go to <ftp://catspaw.jpl.nasa.gov/pub/sparse-array>

The three files therein are:

h_mss_c249-v1.jpg : map_image then bytscl
h_mss_c249-v2.jpg : bytscl then map_image
tarray.gif : The data, array size unchanged,
bytscl'd and tv'd only

The colored lines in tarray.gif are the data, the grey background
are the grid elements with no data.

I keep meaning to have a close look at map_image, but other
exigencies have intruded. I'm not at all sure that this isn't a
problem of my own making.

William

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Outside of a dog, a book is man's best friend.

Inside of a dog, it's too dark to read.

Groucho Marx.

Public Key: <http://home.earthlink.net/~whdaffer/#PGP-public-key>
