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 boondogle, 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-chosing 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 portible, 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/chosing method.

Will I have to hack map image? Or go back to the old way?

William

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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 to 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, (bytscl, then map image) and
>> got similar results, but thought that I should make the bytscl 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 : The data, array size unchanged, tarray.gif 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

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